ORDER NO. VRD0005015C3

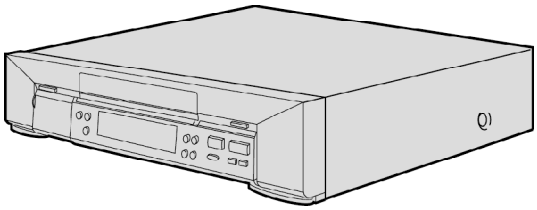
Service Manual

Video Cassette Recorder

Panasonic VHS
PAL/NTSC
Hi-Fi HQ

NV-FJ600A / NV-FJ600EA

Z-MECHANISM



SPECIFICATIONS

SPECIFICATIONS

ITEM	SPECIFICATION		ITEM	SPECIFICATION
POWER	SOURCE: 220-240 V AC 50/60 Hz		AUDIO	HEAD: 1 Stationary head (Normal-mono only) 2 channels (Hi-Fi Sound-Stereo)
	CONSUMPTION: 18 watts (NV-FJ600A) 19 watts (NV-FJ600EA) COMSUMPTION WHEN IN STANDBY MODE: Approx.6W			INPUT: AUDIO IN (AV1, AV2) Connector More than -6dBV (500 mV), 10 kΩ
RECORDING SYSTEM	2 rotary heads, helical scanning system			OUTPUT: AUDIO OUT (AV1) Connector (Phono type) -6 dBV (500mV), Less than 1kΩ
	PAL/ NTSC			
TV TUNER SYSTEM	NV-FJ600A	VHF: CH0-CH12 (PAL B) UHF: CH28-CH69 (PAL G) CATV: 45 MHz-470 MHz (PAL B)	TAPE SPEED	SP: 23.39 mm/s (PAL), 33.35mm/s (NTSC) LP: 11.695 mm/s (PAL) EP: 7.796mm/s (PAL), 11.12mm/s (NTSC) Record/Playback Time: SP: 4 hours with 240 min. type tape LP: 8 hours with 240 min. type tape EP: 12 hours with 240 min. type tape FF/REW Time: 60 sec. with 180 min. type tape
	NV-FJ600EA	VHF: CH1-CH11 (PAL B) UHF: CH21-CH69 (PAL G) CATV: 44 MHz-470 MHz (PAL B)		
RF OUT SYSTEM	NV-FJ600A	UHF: CH28-CH69 (PAL G) 71 ± 3 dBμ, 75 Ω closed	OPERATING TEMPERATURE	5˚C - 40˚C
	NV-FJ600EA	UHF: CH21-CH69 (PAL G) 71 ± 3 dBμ, 75 Ω closed	OPERATING HUMIDITY	35% - 80%
VIDEO	HEADS: 4 rotary heads 1 pair for recording and playback (L-R heads) 1 pair for trick play (L'-R' heads)		DIMENSIONS	470 (W)×87(H)×283(D) mm
	INPUT: VIDEO IN (AV1, AV2) 1.0 Vp-p, 75 Ω terminated		WEIGHT	3.5 kg
	OUTPUT: VIDEO OUT (AV1) Connector 1.0 Vp-p, 75 Ω terminated		STANDARD ACCESSORIES	1 pc. DIN-RF Cable 1 pc. AC Mains Lead 1 pc. Infra-res Remote Controller

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

1. INTRODUCTION

This service manual contains technical information which will allow service personnel to understand and service this model.
If the circuit is changed or modified, this information will be followed by supplementary service manual to be filed with original service manual.

Note:

1. **Adjustment procedures, Disassembly Procedures and Assembly Procedures for Mechanism Chassis are separate volume from this service manual. / Please refer to the service manual for Z-Mechanism Chassis. (Order No. VRD9802005C2)**
2. **The Model No. is indicated on the Schematic Diagram and Circuit Board Diagrams as follows.**

Model No.	Indication Mark
NV-FJ600A	(A)
NV-FJ600EA	(EA)

2. GENERAL DESCRIPTIONS

2.1. SERVICE INFORMATION

2.1.1. MICROPROCESSOR RESET

When the Microprocessor IC6001, MAIN C.B.A. and/or Back-up Battery B6001 are replaced, read following procedure carefully and proceed it.

Reasons:
There is a RAM in the IC6001, which is backing up:

1. **TV Tuning Data.**
2. **PG shifter Adjustment Data**
3. **Option Setting Data**

When IC6001, MAIN C.B.A. and/or Back-up Battery B6001 are replaced, all above listed data become not available.
These data are backing up by using the power source of:

AC connected: AC Power source
AC Disconnected: Back-up Battery B6001

Method:
Before replacing IC6001, MAIN C.B.A. and/or B6001:

1. **Take a note that stored TV broadcasts channels.(Because , its user may store TV broadcasts by manually other than "Auto Tuning" operation and it is also erased.)**

After replacing IC6001, MAIN C.B.A. and/or B6001:

1. **Turn on the VCR.**
2. **Connect a jumper wire between TL7509 and TL7510 for 1 second to reset IC6001.**

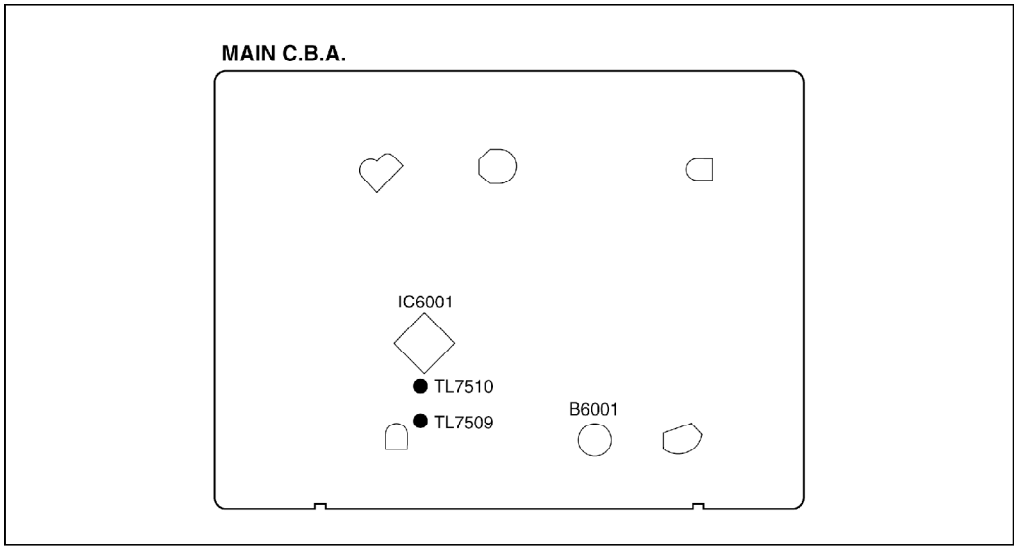
After resetting IC6001:

1. **Store TV broadcasts channels by Auto/Manual Tuning using the On Screen Display according to note which taken before replacing IC6001, MAIN C.B.A. and/or B6001.**
2. **Set the Direct Rec function to OFF using On Screen Display if necessary. / (Because, Direct Rec function is set automatically to ON after resetting IC6001.) / [Direct Rec Function] / OFF: Normally set at this position. / ON: This settingenables Direct Rec. / AV1 Input(A1) becomes exclusive channel for Direct Rec.**
3. **Perform the PG SHIFTER ADJUSTMENT. / (Refer to the Electrical Adjustment Procedures.)**

Note:

1. **It should be performed before tuning.**
2. **Do not cut off the power source during reset.**

Fig. S1



2.1.2. CYLINDER UNIT REPLACEMENT

1. CYLINDER UNIT REPLACEMENT

A. Remove the mechanism unit from MAIN C.B.A./Chassis by referring“SECTION 3. Disassembly Method”.

B. Remove the 3 screws (A) of the CYLINDER UNIT with a screw driver.

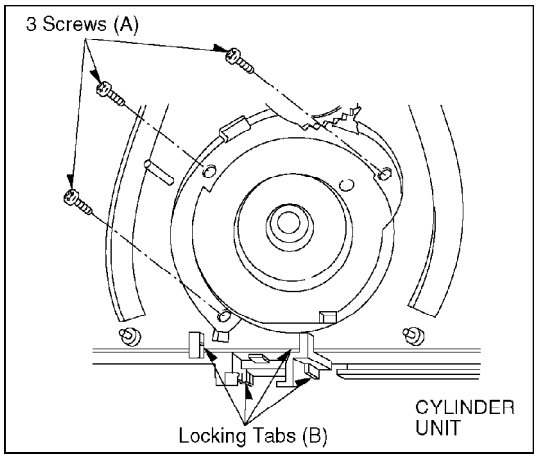
C. Unlock the 4 locking tabs (B) and disconnect the Cylinder fiexible card from the FPC Holder.

D. Remove the CYLINDER UNIT.

CAUTION:

Handle the Cylinder flexible card with care. When it damaged, you should replace whole Cylinder unit.

Fig. S2

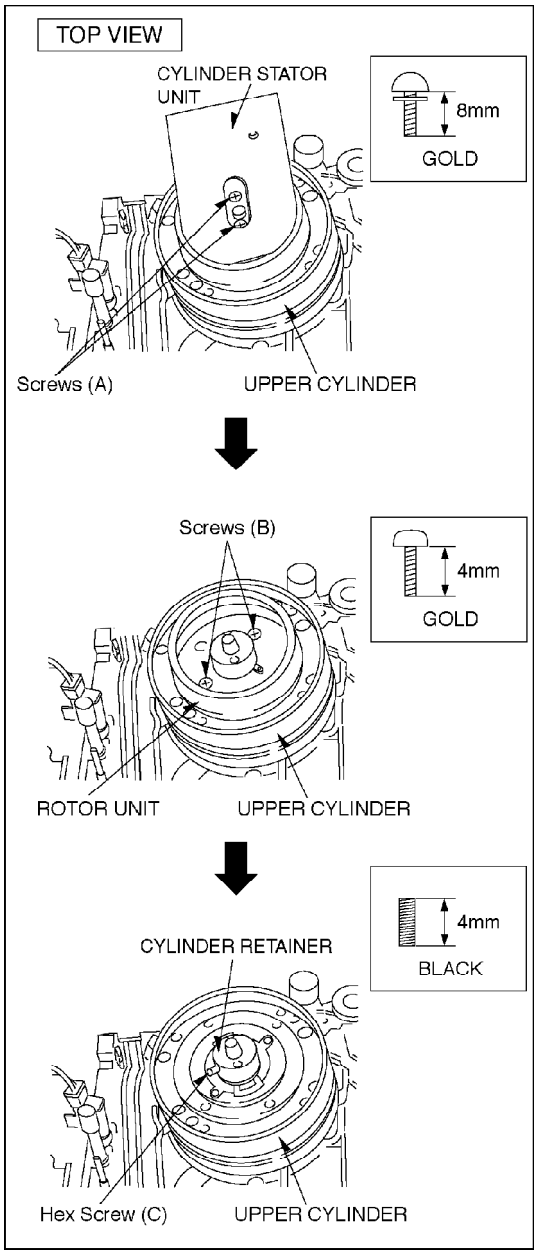


2. UPPER CYLINDER DISASSEMBLY

A. Remove 2 screws (A).

B. Remove the Cylinder Stator Unit.
C. Remove 2 screws (B).
D. Remove the Cylinder Rotor Unit.
E. Loose Hex screw (C) (1.5 mm) and remove the CYLINDER RETAINER.
F. Remove the Upper Cylinder.

Fig. S3



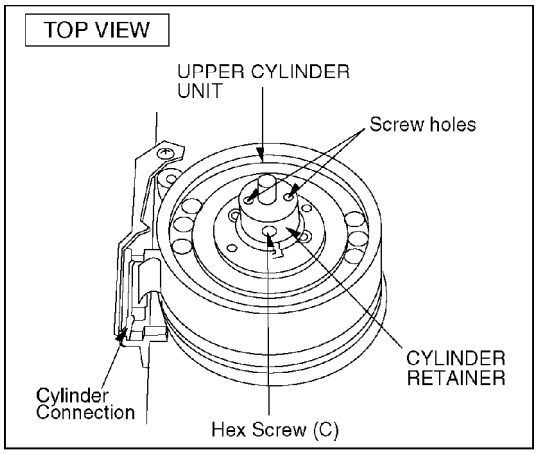
3. UPPER CYLINDER ASSEMBLY

When reassembling, perform the steps in the reverse order.

Notes:

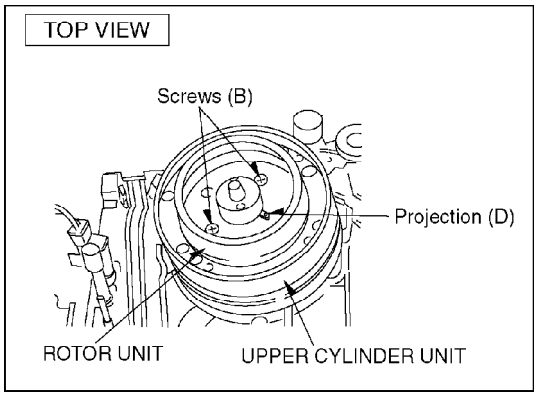
1. **Install the Cylinder Retainer so that the 2 holes on top of the Cylinder Retainer are at right angles with the Cylinder Connection.**
2. **Tighten the Hex screw (C) (1.5 mm) while pressing down on top of the Cylinder Retainer.**

Fig. S4



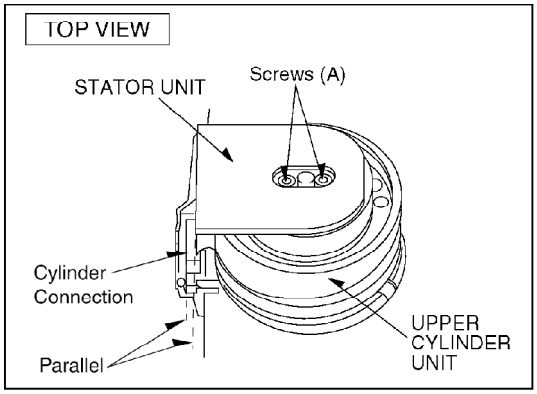
3. **Install the Cylinder Rotor Unit so that the inner hole of the Cylinder Rotor Unit fits to the small projection (D) on top of the Upper Cylinder.**
4. **Tighten 2 screws (B).**

Fig. S5



5. **Install the Cylinder Stator Unit so that the rear side of the Cylinder Stator C.B.A. is parallel with the Cylinder Connection.**
6. **Tighten 2 screws (A).**

Fig. S6

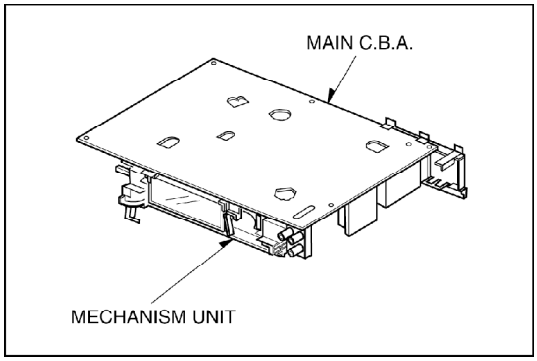


7. Confirm the PG SHIFTER ADJUSTMENT with the alignment tape (PAL: VFJ8125H3F) and adjust it if necessary.

2.1.3. CHECKING OF MAIN C.B.A.

When servicing the MAIN C.B.A., take out the MAIN C.B.A. and mechanism from the frame and turn over.

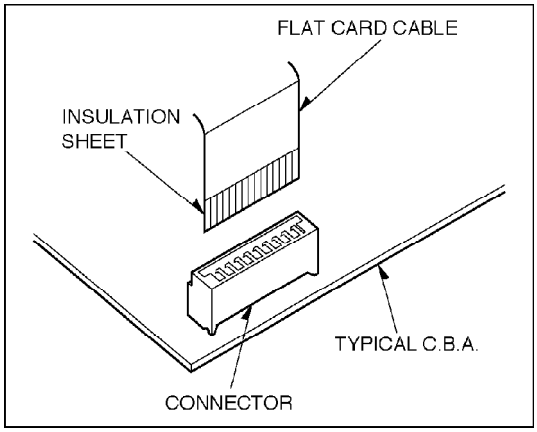
Fig. S7



2.1.4. FLAT CARD CABLE INSTALLATION

When installing the Flat Card Cable on the connector, install the Flat Card Cable with the cable contacts facing the connector contacts.

Fig. S8

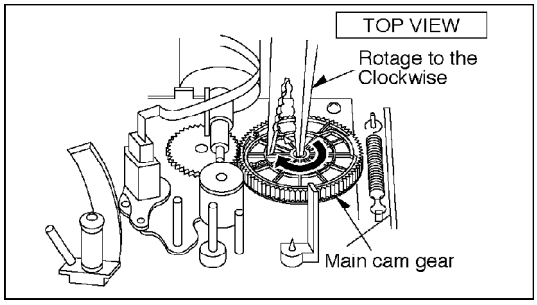


2.2. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

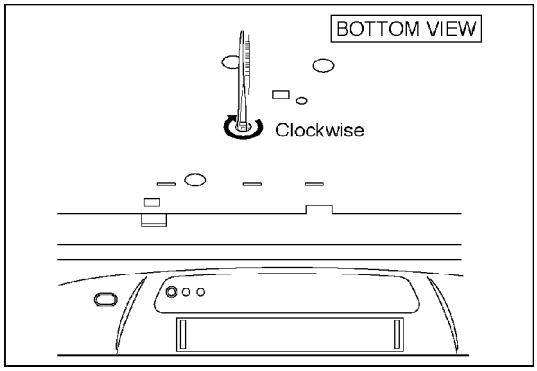
1. **Service Information Display Operation**
   - **A. Press the FF and EJECT keys simultaneosly for 3 seconds and set the Service Mode 7.**
   - **B. Press STOP key in order to rotate the Loading Motor for unloading operation. (Pay an attention of tape slack)**
2. **Manual Operation**
   - **A. Disconnect the AC Mains Lead and remove the Top Panel.**
   - **B. Rotate the Main Cam Gear clockwise until the Loading Posts move to fully unloaded position as shown inFig. S9. (Tape is remaining)**

Fig. S9



- **C. Rotate the Capstan Motor clockwise from the bottom side to take up the tape.**

Fig. S10



- **D. Rotate the Main Cam Gear clockwise until the cassette tape is ejected.**

2.3. INTRODUCTION OF VIDEO HEAD CLEANING CASSETTE / (POLISHING TYPE)

1. **We are pleased to introduce Panasonic Video Head Cleaning Cassette,VFK0923FT [for service purposes] andVFK0923FSE [for**

end users] for all VHS/SVHS VCP and VCR.

2. **These cleaning cassettes are exclusive removing the hard and sticky clogging on video heads.**
3. **These improve the efficiency of video head cleaning service and shortening cleaning time for end users.**

VFK0923FT (For Service usage)	
Type of Cassette	**Full VHS Cassette**
Cleaning Time	**10 Seconds/Time**
Tape Length	**20 m**
Usability in a Path	**180 Times**

VFK0823FSE (For end users)	
Type of Cassette	**Full VHS Cassette**
Cleaning Time	**10 Seconds/Time**
Tape Length	**3.34 m**
Usability in a Path	**30 Times**

VFK0823FSE (For end users)

Note:

The tape material itself is the same in both types.

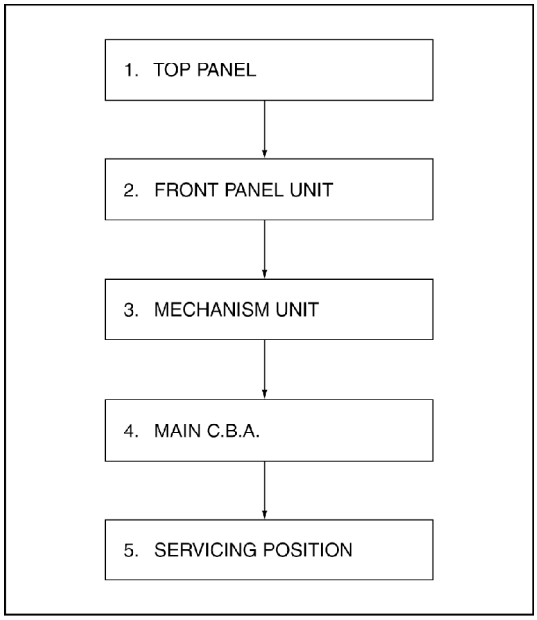
3. ADJUSTMENT PROCEDURES

3.1. DISASSEMBLY METHOD

3.1.1. DISASSEMBLY FLOW CHART

This flow chart indicates disassembly steps of the cabinet parts and the circuit boards in order to find the necessary items for servicing.
When reassembling, perform the steps in the reverse order.

Fig. D1

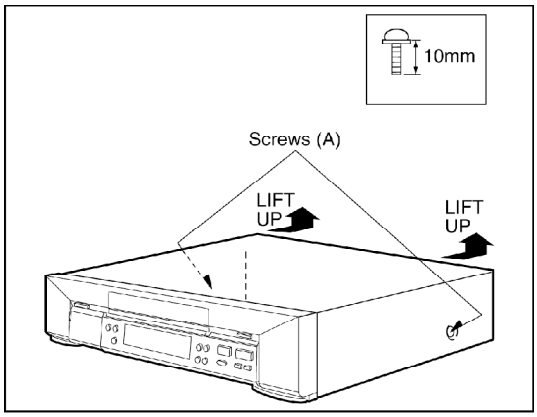


3.1.2. DETAIL OF DISASSEMBLY METHOD

1. REMOVAL OF THE TOP PANEL

Remove	**2 Screws (A)**

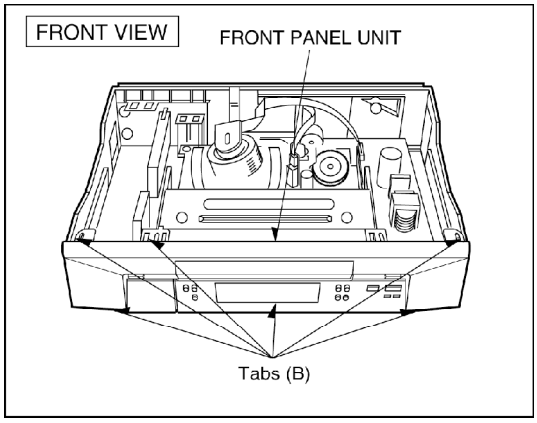
Fig.D2



2. REMOVAL OF THE FRONT PANEL UNIT

Unlock	**6 Tabs (B)**

Fig. D3



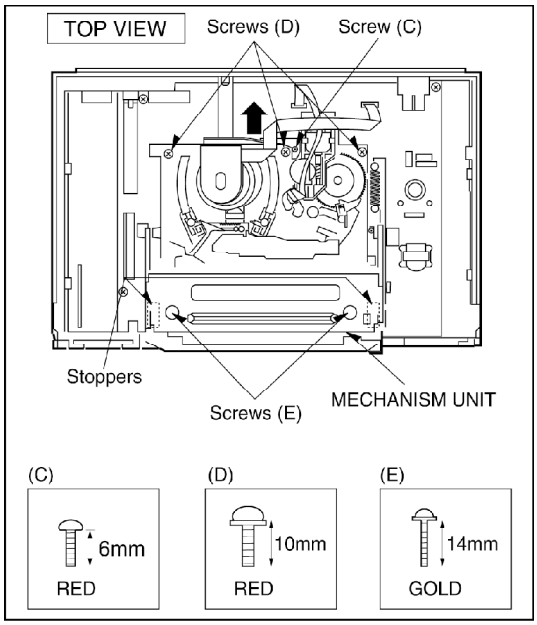
3. REMOVAL OF THE MECHANISM UNIT

Remove	**Screw (C)**
Remove	**3 Screws (D)**
Remove	**2 Screws (E)**

Note:

1. **Keep pressing 2 stoppers on Cassette Holder Plate and Press Cassette Holder Plate to the rear.**
2. **Remove the Mechanism Unit after bend the Cylinder Shield in the direction of the arrow.**

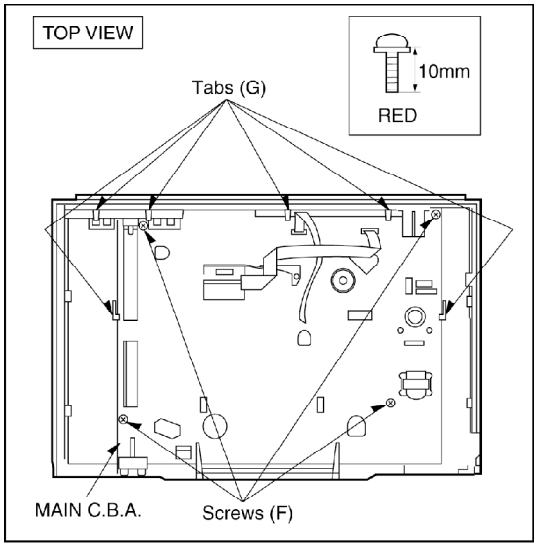
Fig. D4



4. REMOVAL OF THE MAIN C.B.A.

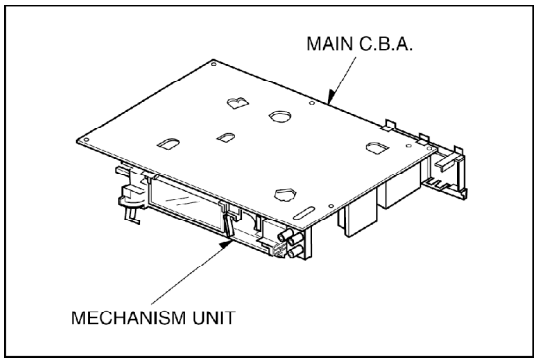
Remove	**4 Screws (F)**
Unlock	**6 Tabs (G)**

Fig. D5



5. SERVICING POSITION

Fig. D6



3.2. MECHANICAL ADJUSTMENT PROCEDURES

Refer to the Service Manual for Z-Mechanism Chassis. / (Order No. VRD9802005C2)

3.3. ELECTRICAL ADJUSTMENT PROCEDURES

3.3.1. PG SHIFTER ADJUSTMENT / (AUTOMATIC)

PROCEDURES	FIP Display
Press the FF and EJECT keys simultaneously for 3 seconds.	
Press the FF and EJECT keys simultaneously more twice.	
Press the EJECT key for 3 seconds.	
Insert the Alignment Tape. (PAL: VFJ81215H3F) (NTSC: VFM8080HQFP)	
This adjustment is automatically started. (During the adjustment, the picture will be appeared on the monitor.)	
When this Adjustment is terminated, the following operation will be activated. -Adjustment completed: The tape will be ejected. -Adjustment incompleted: "F2*" is indicated on the FIP.Check the Servo/ System Control circuit and Cylinder Unit.	
To release Service Mode, press the FF and EJECT keys. simultaneously 6 times until the normal indication on the FIP.	

Fig. E1

4. ABBREVIATIONS

5. INPUT/OUTPUT CHART

5.1. INPUT/OUTPUT CHART FOR IC6001

Fig. MP1

Fig. MP2

Fig. MP3

6. WAVEFORM TABLE

7. BLOCK DIAGRAMS

7.1. SYSTEM CONTROL& SERVO BLOCK DIAGRAM

7.2. LUMINANCE& CHROMINANCE BLOCK DIAGRAM

7.3. AUDIO BLOCK DIAGRAM

8. SCHEMATIC DIAGRAMS

8.1. POWER TRANSFORMER SCHEMATIC DIAGRAM

8.2. POWER SUPPLY/RF SECTION IN MAIN SCHEMATIC DIAGRAM

8.3. TIMER SECTION IN MAIN SCHEMATIC DIAGRAM

8.4. SYSTEM CONTROL& SERVO SECTION IN MAIN SCHEMATIC DIAGRAM

8.5. LUMINANCE& CHROMINANCE/AUDIO SECTION IN MAIN SCHEMATIC DIAGRAM

8.6. HEAD AMP SECTION IN MAIN SCHEMATIC DIAGRAM

8.7. DECODER PACK SCHEMATIC DIAGRAM (NV-FJ600A)

8.8. NICAM DECODER PACK SCHEMATIC DIAGRAM (NV-FJ600EA)

8.9. CYLINDER STATOR UNIT SCHEMATIC DIAGRAM

8.10. CAPSTAN UNIT SCHEMATIC DIAGRAM

9. CIRCUIT BOARD ASSEMBLIES

9.1. DECODER PACK C.B.A. (NV-FJ600A)

9.2. NICAM DECODER PACK C.B.A. (NV-FJ600EA)

9.3. MAIN C.B.A.

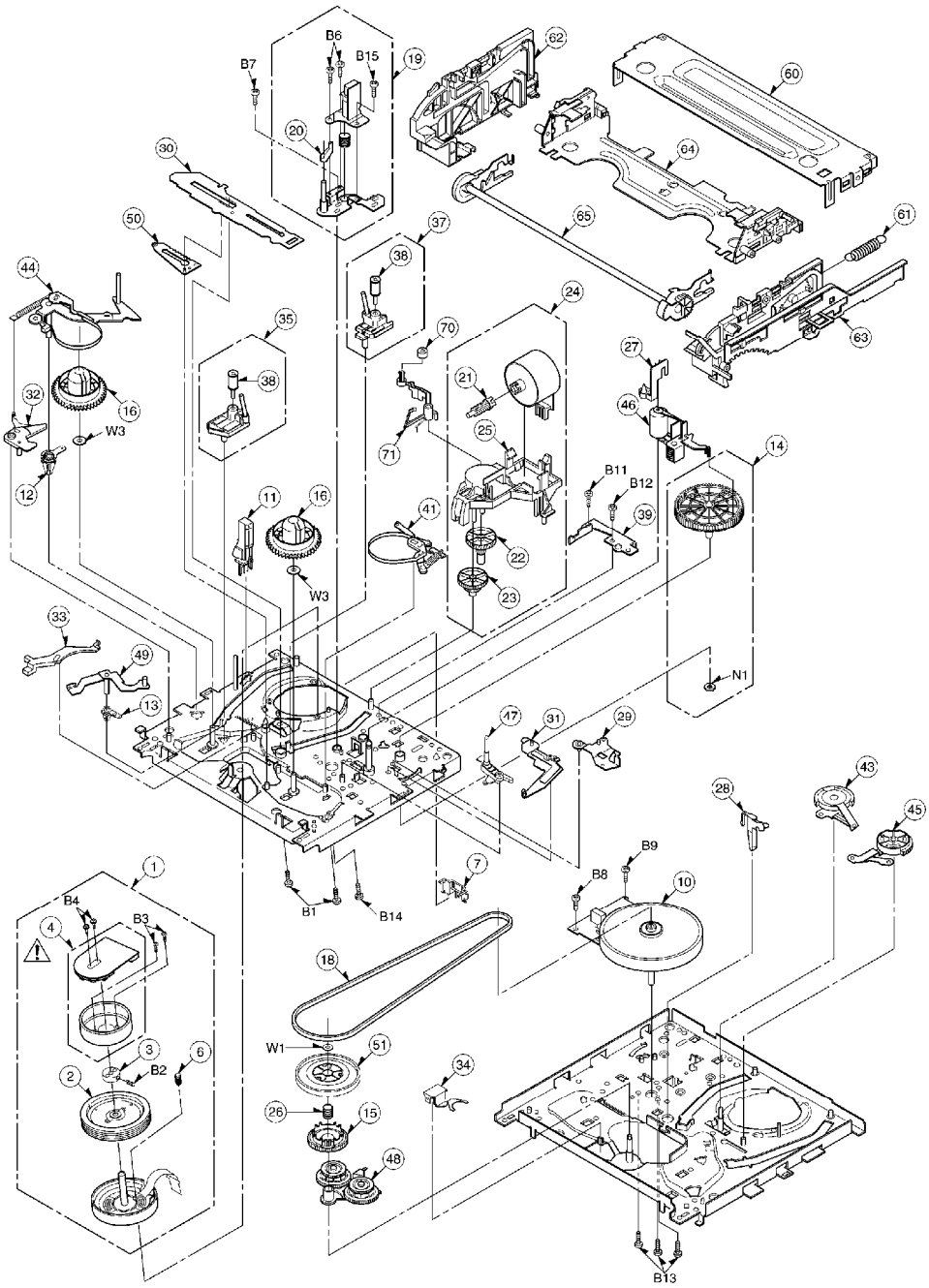
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ▲ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

CAUTION	THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

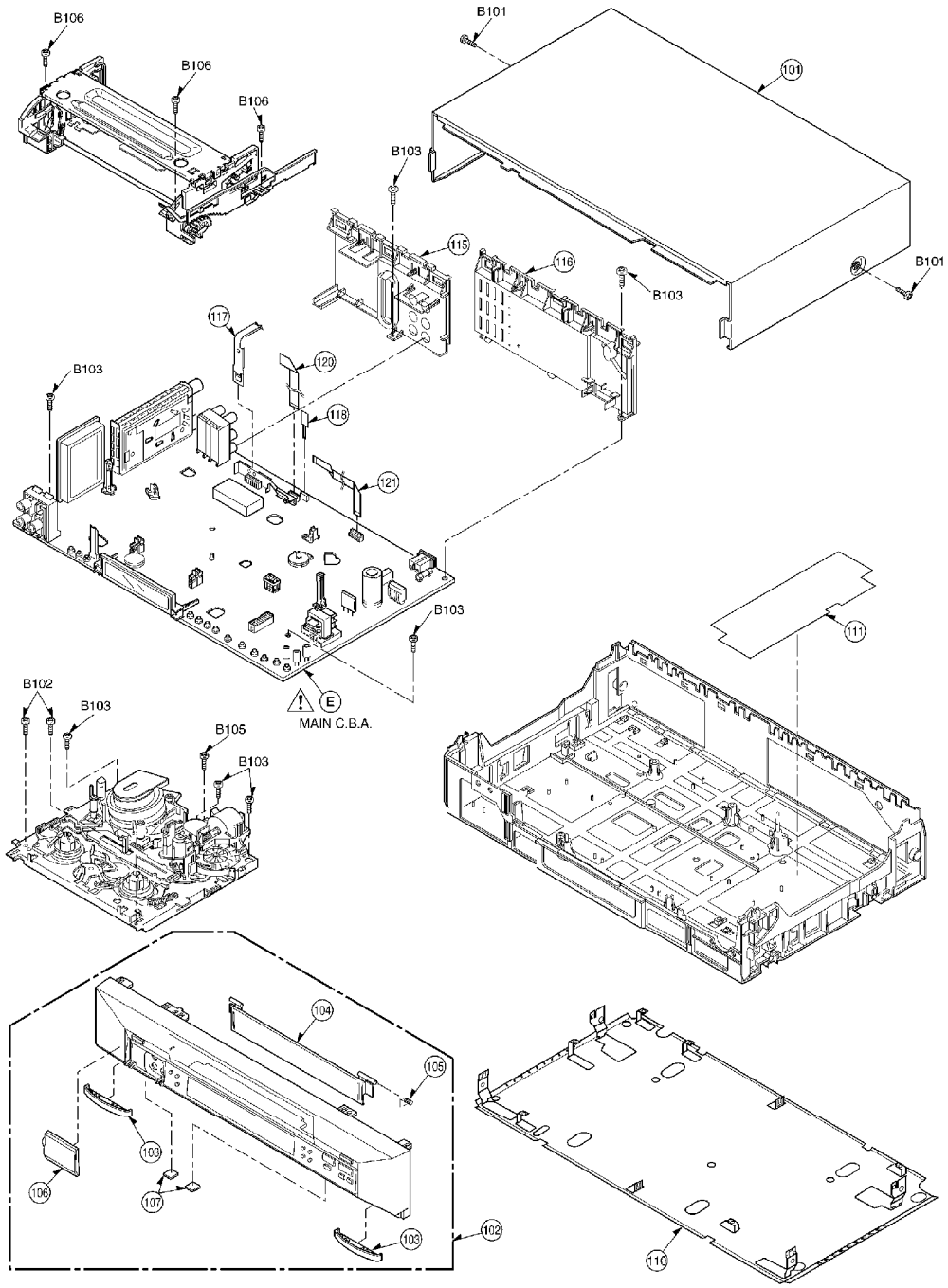
9.4. CYLINDER STATOR UNIT

10. EXPLODED VIEWS

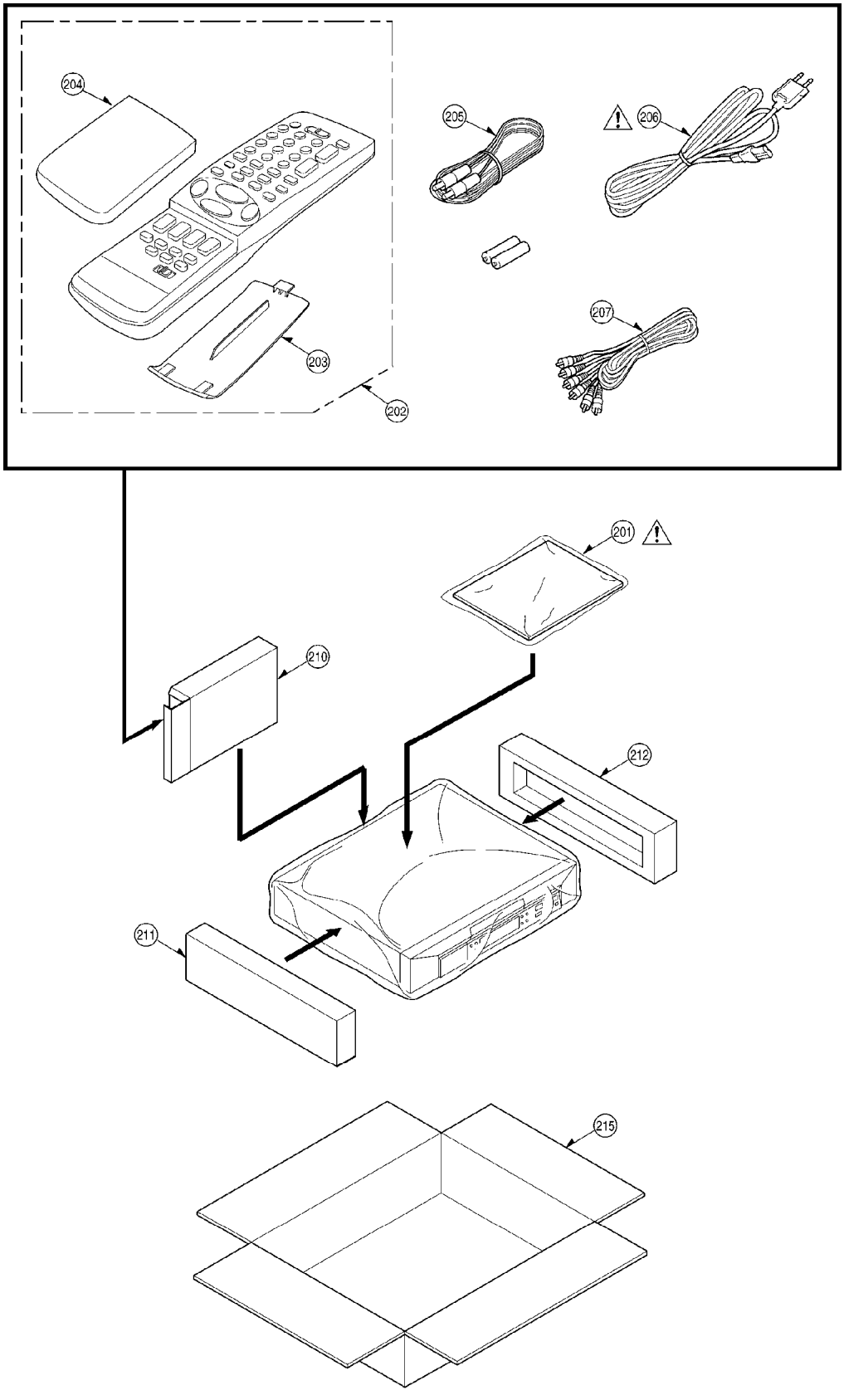
10.1. CHASSIS PARTS SECTION



10.2. CASING PARTS SECTION



10.3. PACKING PARTS SECTION



11. REPLACEMENT PARTS LIST

11.1. CHASSIS PARTS SECTION PARTS LIST

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
1 (1)	VEG1522	CYLINDER UNIT	1	
2 (1)	VXP2001	UPPER CYLINDER UNIT	1	
3 (1)	VDB1256	CYLINDER RETAINER	1	
4 (1)	VEM0715	CYLINDER MOTOR UNIT	1	⚠
6 (1)	VXS0135	EARTH BRUSH UNIT	1	
7 (1)	VMD3795	FLAT CABLE HOLDER	1	
10 (1)	VEK9069	CAPSTAN UNIT	1	
11 (1)	VBS0155	FE HEAD	1	
12 (1)	VDB1431	TENSION ARM BOSS	1	
13 (1)	VDB1460	SUPPLY BRAKE ARM BOSS	1	
14 (1)	VDG1220KIT	MAIN CAM GEAR	1	
15 (1)	VDG1221	CONVERSION GEAR	1	
16 (1)	VDR0350	SUPPLY REEL TABLE	2	
18 (1)	VDV0382	CAPSTAN BELT	1	
19 (1)	VED0412	A/C HEAD UNIT	1	
20 (1)	VMX2656	P4 CAP	1	
21 (1)	VDG1217	WORM GEAR	1	
22 (1)	VDG1218	WORM WHEEL GEAR	1	
23 (1)	VDG1219	CENTRE GEAR	1	
24 (1)	VEM0604	LOADING MOTOR UNIT	1	
25 (1)	VMD2619	MOTOR BRACKET	1	
26 (1)	VMB3045	CONVERSION GEAR SPRING	1	
27 (1)	VMD2620	OPENER PIECE	1	
28 (1)	VMD2738	LED PRISM	1	
29 (1)	VML3165	DRIVE RACK ARM	1	
30 (1)	VML3166	MAIN LEVER	1	
31 (1)	VML3167	DRIVE MAIN LEVER ARM	1	
32 (1)	VML3172	SUPPLY SPRING ARM	1	
33 (1)	VML3176	CONVERSION LEVER A	1	
34 (1)	VML3177	CONVERSION LEVER B	1	
35 (1)	VXA6040	INCLINED BASE (S) UNIT	1	
37 (1)	VXA5854	INCLINED BASE (T) UNIT	1	
38 (1)	VXP1840	ROLLER POST	2	
39 (1)	VMA9672	SUPPORT ANGLE	1	
41 (1)	VXL2667	TAKE UP BRAKE ARM UNIT	1	
43 (1)	VXL2670	TAKE UP LOADING ARM UNIT	1	
44 (1)	VXL2798	TENSION ARM UNIT	1	
45 (1)	VXL2672	SUPPLY LOADING ARM UNIT	1	
46 (1)	VXL2785	PINCH ARM UNIT	1	
47 (1)	VXL2996	P5 ARM UNIT	1	
48 (1)	VXL2792	IDLER ARM UNIT	1	
49 (1)	VXL2733	SUPPLY BRAKE ARM UNIT	1	
50 (1)	VXL2747	LOADING RACK UNIT	1	
51 (1)	VXP2035	CENTRE CLUTCH UNIT	1	
60 (1)	VMA9516	TOP PLATE	1	
61 (1)	VMB3047	CONNECTION SPRING	1	
62 (1)	VMD3379	SIDE PLATE (L)	1	
63 (1)	VXA6540	SIDE PLATE (R) UNIT	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
64 (1)	VXA5746	CASSETTE HOLDER UNIT	1	
65 (1)	VXP1730	MAIN SHAFT UNIT	1	
70 (1)	VDP1668-K	CLEANER ROLLER	1	
71 (1)	VML3164	CLEANER ARM	1	
B1 (1)	VHD1117	SCREW	2	
B2 (1)	VHD0842	SCREW	1	
B3 (1)	VHD0843	SCREW	2	
B4 (1)	VHD0844	SCREW	2	
B6 (1)	VHD1066	SCREW	2	
B7 (1)	VHD1044	SCREW	1	
B8 (1)	VHD1060	SCREW	1	
B9 (1)	VHD1071	SCREW	1	
B11 (1)	XTS26+6F	SCREW	1	
B12 (1)	XTN26+6F	SCREW	1	
B13 (1)	XTN26+7J	SCREW	3	
B14 (1)	VHD1095	SCREW	1	
B15 (1)	VHD1185	SCREW	1	
N1 (1)	VHN0311	PUSH NUT	1	
W1 (1)	VMX2208	WASHER	1	
W3 (1)	VMX3022	WASHER	2	

11.2. CASING PARTS SECTION PARTS LIST

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
101 (2)	VGM1695	TOP PANEL	1	
102 (2)	VYP7806	FRONT PANEL UNIT	1	NV-FJ600A
102 (2)	VYP7816	FRONT PANEL UNIT	1	NV-FJ600EA
103 (2)	VKA0191	LEG	2	
104 (2)	VKF3251	BLINDER PANEL	1	
105 (2)	VMB2521	BLINDER SPRING	1	
106 (2)	VYF2703	DOOR	1	
107 (2)	RKA0072	FOOT	2	
110 (2)	VKU0559	BOTTOM PLATE	1	
111 (2)	VMZ3048	BARRIER	1	
115 (2)	VJH1142	ANT JACK PLATE	1	
116 (2)	VJH1134	AV JACK PLATE	1	
117 (2)	VMC1632	EARTH SPRING	1	
118 (2)	VEK8192	DEW SENSOR	1	
120 (2)	VWJ1281	FLAT CARD CABLE (6P)	1	P4001-A/C HEAD
121 (2)	VWJ1436	FLAT CARD CABLE (9P)	1	P2501-P2901
B101 (2)	XTW3+10TFC	SCREW	2	
B102 (2)	VHD0168	SCREW	2	
B103 (2)	VHD1092	SCREW	7	
B105 (2)	XTV26+6FR	SCREW	1	
B106 (2)	XTV26+8FR	SCREW	3	

11.3. PACKING PARTS SECTION PARTS LIST

Note: 1. *Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
201 (3)	VQT8766	OPERATING INSTRUCTIONS	1	⚠
		(ENGLISH)		
202 (3)	EUR571759	REMOTE CONTROLLER	1	
203 (3)	UR57EC679F	BATTERY COVER	1	
204 (3)	UR57CV680C	DOOR PANEL	1	
205 (3)	VJA0376	DIN RF CABLE	1	
206 (3)	VJA0754	AC CORD	1	⚠
207 (3)	VJA1062	AV CABLE	1	
210 (3)	VPK2203	ACCESSORIES PACKING	1	
211 (3)	VPN5359	CUSHION (L)	1	
212 (3)	VPN5360	CUSHION (R)	1	
215 (3)	VPG0E78	PACKING	1	NV-FJ600A
215 (3)	VPG0E79	PACKING	1	NV-FJ600EA
.		SERVICE FIXTURES& TOOLS		
.	VFJ8125H3F	VHS ALIGNMENT TAPE (PAL)	1	
.	VFK0335	RETAINING RING REMOVER	1	
.		(3mm/4mm)		
.	VFK0329	POST ADJUSTMENT SCREWDRIVER	1	
.	VFK0326	HEX WRENCH SET	1	
.	VFK0132	BACK TENSION METER	1	
.	VFK27	HEAD CLEANING STICK	1	
.	VFK1024	MOLYTONE GREASE	1	
.	VFK0330	FINE ADJUSTMENT GEAR DRIVER	1	
.	VFK1301	SILICONE GREASE	1	

11.4. ELECTRICAL PARTS LIST

Note: 1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE: Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
3. Unless otherwise specified,
All resistors are in OHMS, K=1,000 OHMS. All capacitors are in MICROFARADS (uf), P=uuF.
4. The P.C. Board units marked width "▮" show below the main assembled parts.
5. The marking (RTL) indicaters the retention time is limited for this item.
After the discontinuation of this assembly in production, it will no longer be available.

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
■	VEP06D47A	MAIN C.B.A.	1	⚠ (RTL)
				NV-FJ600A
				INCLUDING THE
				DECODER PACK C.B.A.
				(VEP07A16B).
■	VEP07A16B	DECODER PACK C.B.A.	1	(RTL)
				NV-FJ600A
				INCLUDED IN MAIN C.B.A.
				(VEP06D47A).
■	VEP06D47B	MAIN C.B.A.	1	⚠ (RTL)
				NV-FJ600EA
				INCLUDING THE
				NICAM DECODER PACK
				C.B.A.(VEP07A18E).
■	VEP07A18E	NICAM DECODER PACK C.B.A.	1	(RTL)
				NV-FJ600EA
				INCLUDED IN MAIN C.B.A.
				(VEP06D47B).
■	----------	CYLINDER STATOR C.B.A.	1	INCLUDED IN
				CYLINDER MOTOR UNIT
				(VEM0715).
■	----------	CAPSTAN DRIVE C.B.A.	1	INCLUDED IN
				CAPSTAN UNIT (VEK9069).
TU7601	ENG57806G1	TUNER	1	⚠
F1101	XBA2C16TB0	FUSE	1	⚠
■	VEP06D47A	MAIN C.B.A.		⚠ (RTL)
				NV-FJ600A
B6001	CR2354-1GUF	LITHIUM BATTERY	1	
C1001	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1002	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1004	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1005	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1006	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1007	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1008	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C1010	ECA1CHG101	E.CAPACITOR 16V 100U	1	
C1011	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1013	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1014	ECA1EHG470	E.CAPACITOR 25V 47U	1	
C1015	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C1016	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1120	ECKMNA331MBV	CERAMIC CAPACITOR	1	⚠
C1121	ECKMNA331MBV	CERAMIC CAPACITOR	1	⚠

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C1122	ECQU2A104MVA	P.CAPACITOR 250V 0.1U	1	⚠
C1124	ECKMNA102MEV	CERAMIC CAPACITOR	1	⚠
C1132	ECQU2A104MVA	P.CAPACITOR 250V 0.1U	1	⚠
C1140	ECEC2GG680	E.CAPACITOR 400V 68U	1	
C1150	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C1151	ECCZ3A101KGE	C.CAPACITOR 1KV 100P	1	
C1152	ECKD2H103PU	C.CAPACITOR 500V 0.01U	1	
C1153	ECA1VGE470X	E.CAPACITOR 35V 47U	1	
C1180	ECEA0JGE331	E.CAPACITOR 6.3V 330U	1	
C1181	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C1200	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C1201	ECQB1H822JF	P.CAPACITOR 50V 8200P	1	
C1230	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1231	ECEA1HGE470	E.CAPACITOR 50V 47U	1	
C1232	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1250	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1251	VCEA1EJH821	E.CAPACITOR 25V 820U	1	
C1252	VCEA1EJC331	E.CAPASITOR 25V 330U	1	
C1260	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1261	EEUFA1A182	E.CAPACITOR 10V 1800U	1	
C1262	VCEA1AJC331	E.CAPACITOR 10V 330U	1	
C1271	ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C1272	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1281	EEUFA1A391	E.CAPACITOR 10V 390U	1	
C2002	VCEA1HCB4R7	E.CAPACITOR 50V 4.7U	1	
C2003	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C2005	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C2006	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2007	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C2008	ECUM1C474KBN	C.CAPACITOR CH 16V 0.47U	1	
C2009	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C2010	ECUM1H392KBN	C.CAPACITOR CH 50V 3900P	1	
C2012	ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C2013	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2014	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2015	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2501	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2502	ECEA1VKN4R7	E.CAPACITOR 35V 4.7U	1	
C2503	ECEA1VKN4R7	E.CAPACITOR 35V 4.7U	1	
C2504	ECEA1VKN4R7	E.CAPACITOR 35V 4.7U	1	
C2505	ECUM1H473ZFN	C.CAPACITOR CH 50V 0.047U	1	
C2506	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2507	ECUM1E683KBN	C.CAPACITOR CH 25V 0.068U	1	
C2508	ECUM1C154KBN	C.CAPACITOR CH 16V 0.15U	1	
C2509	ECUM1C154KBN	C.CAPACITOR CH 16V 0.15U	1	
C2510	ECUM1C154KBN	C.CAPACITOR CH 16V 0.15U	1	
C2511	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C2512	VCEA1ECB470	E.CAPACITOR 25V 47U	1	
C3001	ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3002	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C3003	ECUM1H821JCN	C.CAPACITOR CH 50V 820P	1	
C3004	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3005	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C3006	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C3007	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C3008	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C3009	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C3010	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3011	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3012	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C3013	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3014	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3015	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3016	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C3017	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C3019	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C3020	VCEA0JEC471	E.CAPACITOR 6.3V 470U	1	
C3022	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C3023	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C3024	ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C3025	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C3027	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3028	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3033	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C3034	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3035	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3036	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3037	ECUM1H120JCN	C.CAPACITOR CH 50V 12P	1	
C3038	ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C3039	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C3040	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3044	VCEA0JCB470	E.CAPACITOR 6.3V 47U	1	
C3045	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C3046	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3048	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C3049	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C3050	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3051	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3052	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C3053	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C3054	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3056	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C3057	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3501	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3502	ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	
C3503	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3504	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3505	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3506	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3507	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3508	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3509	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3510	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C4005	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	1	
C4006	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	1	
C4007	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C4008	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C4009	VCEA0JCB470	E.CAPACITOR 6.3V 47U	1	
C4011	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4012	ECUM1H273KBN	C.CAPACITOR CH 50V 0.027U	1	
C4013	ECUM1H682KBN	C.CAPACITOR CH 50V 6800P	1	
C4024	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4025	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C4026	ECUM1H272KBN	C.CAPACITOR CH 50V 2700P	1	
C4027	ECUM1H122JCN	C.CAPACITOR CH 50V 1200P	1	
C4028	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C4029	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C4030	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4031	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C4037	ECUM1H152KBN	C.CAPACITOR CH 50V 1500P	1	
C4038	ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C4039	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C4040	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C4041	ECQB1H223JF	P.CAPACITOR 50V 0.022U	1	
C4043	ECUM1H273KBN	C.CAPACITOR CH 50V 0.027U	1	
C4045	ECUM1H222JCN	C.CAPACITOR CH 50V 2200P	1	
C4046	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C4501	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4502	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4503	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4504	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4505	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4506	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4507	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4508	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4509	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4510	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4511	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C4512	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C4513	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4514	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C4515	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C4516	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C4517	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C4520	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C4521	ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C4522	ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C4523	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C4524	ECEA0JKS331	E.CAPACITOR 6.3V 330U	1	
C4525	ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C4526	VCEA1HCB2R2	E.CAPACITOR 50V 2.2U	1	
C4527	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4528	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C4529	ECUM1H562KBN	C.CAPACITOR CH 50V 5600P	1	
C4530	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4531	ECUM1H562KBN	C.CAPACITOR CH 50V 5600P	1	
C6001	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C6002	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C6003	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C6004	ECUM1H150JCN	C.CAPACITOR CH 50V 15P	1	
C6005	ECUM1H180JCN	C.CAPACITOR CH 50V 18P	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C6006	ECUM1H180JCN	C.CAPACITOR CH 50V 18P	1	
C6007	ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C6008	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6010	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6011	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C6013	VCEA0JEC471	E.CAPACITOR 6.3V 470U	1	
C6015	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6020	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7301	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C7302	ECEA1HKNR47	E.CAPACITOR 50V 0.47U	1	
C7303	ECEA1HKNR47	E.CAPACITOR 50V 0.47U	1	
C7304	ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C7305	ECUM1H123KBN	C.CAPACITOR CH 50V 0.012U	1	
C7306	ECUM1H123KBN	C.CAPACITOR CH 50V 0.012U	1	
C7307	ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C7308	ECEA1HKNR47	E.CAPACITOR 50V 0.47U	1	
C7309	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C7310	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C7312	ECEA1CKA100	E.CAPACITOR 16V 10U	1	
C7313	ECEA1CKA100	E.CAPACITOR 16V 10U	1	
C7316	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7317	ECEA0JKA101	E.CAPACITOR 6.3V 100U	1	
C7318	ECEA1CKA100	E.CAPACITOR 16V 10U	1	
C7319	ECEA1CKA470	E.CAPACITOR 16V 47U	1	
C7320	ECUM1H472KBN	C.CAPACITOR CH 50V 4700P	1	
C7321	ECEA1HKAR47	E.CAPACITOR 50V 0.47U	1	
C7322	ECEA1HKNR47	E.CAPACITOR 50V 0.47U	1	
C7323	ECUM1H104KBN	C.CAPACITOR CH 50V 0.1U	1	
C7326	ECUM1H152KBM	C.CAPACITOR CH 50V 1500P	1	
C7327	ECUM1H152KBM	C.CAPACITOR CH 50V 1500P	1	
C7328	ECUM1H152KBM	C.CAPACITOR CH 50V 1500P	1	
C7502	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7503	ECUM1H120JCN	C.CAPACITOR CH 50V 12P	1	
C7504	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7505	VCEA1HCB100	E.CAPACITOR 50V 10U	1	
C7601	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C7605	VCEA1HCB100	E.CAPACITOR 50V 10U	1	
C7608	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7609	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7611	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7612	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7613	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7701	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7702	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7705	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C7706	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7707	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C7708	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
D1001	MA4051N-M	DIODE	1	
D1002	1SS254	DIODE	1	
D1004	MA4130N-L	DIODE	1	
D1005	MA4051N-M	DIODE	1	
D1006	1SS254	DIODE	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
D1140	S1WBA80-4062	BRIDGE DIODE	1	
D1150	11EQS04	DIODE	1	
D1151	MA7300B	DIODE	1	
D1152	AP01C	DIODE	1	
D1153	MA185	DIODE	1	
D1180	1SS254	DIODE	1	
D1200	1SS254	DIODE	1	
D1201	1SS254	DIODE	1	
D1230	ERA22-04	DIODE	1	
D1250	RL2ZP	DIODE	1	
D1261	21DQ06FC4	DIODE	1	
D1270	ERA22-04	DIODE	1	
D1280	11EQS06	DIODE	1	
D2001	1SS254	DIODE	1	
D2002	1SS254	DIODE	1	
D2003	1SS254	DIODE	1	
D2501	MA723VT	DIODE	1	
D6001	1SS254	DIODE	1	
D6002	1SS254	DIODE	1	
D6003	MA700A	DIODE	1	
D6004	RB441P	DIODE	1	
D6005	RB441P	DIODE	1	
D6006	1SS254	DIODE	1	
D6007	SIR505S	DIODE	1	
D6008	1SS254	DIODE	1	
D7501	1SS254	DIODE	1	
D7502	MA4220N	DIODE	1	
D7601	MA4300N-M	DIODE	1	
D7702	1SS254	DIODE	1	
DP7501	VSL0543	DISPLAY TUBE	1	
F1101	XBA2C16TB0	FUSE	1	⚠
IC1001	PQ20VB2E	IC	1	
IC1150	STRF6552	IC	1	
IC1200	TL431CLP	IC	1	
IC2501	AN3811NK	IC	1	
IC3001	AN3531NFBS	IC	1	
IC3501	AN3368SB	IC	1	
IC4501	TDA9605H	IC	1	
IC6001	MN101D02GMC	IC	1	
IC6002	RPI354N	IC	1	
IC6003	RPI354N	IC	1	
IC6004	PNA4611M08VT	PHOTO DIODE	1	
IC6005	RN5VS42CA	IC	1	
IC7301	TDA9873H	IC	1	
IC7501	M35502AFP	IC	1	
IP1001	UNH000300A	IC PROTECTOR	1	⚠
IP1002	UNH000300A	IC PROTECTOR	1	⚠
IP1003	VSF0015A025	IC PROTECTOR	1	⚠

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
IP1004	UNH000300A	IC PROTECTOR	1	⚠
IP1280	VSF0015A10	FUSE	1	⚠
JK3001	VJJ0680	PIN JACK 3-PIN	1	
JK3002	VJJ0675	PIN JACK 3-PIN	1	
K3007	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K3502	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K4006	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K4009	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K6002	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K7301	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
L1120	ELF15N003A	LINE FILTER	1	⚠
L1121	ELF15N003A	LINE FILTER	1	⚠
L1230	ELESE101KA	COIL 100UH	1	
L1250	VLQ0655K220	COIL 22UH	1	
L1260	VLQ0655K220	COIL 22UH	1	
L1270	ELESE101KA	COIL 100UH	1	
L2501	VLQ0599J680	COIL 68UH	1	
L3001	VLQ0599J680	COIL 68UH	1	
L3002	VLQ0599J390	COIL 39UH	1	
L3003	VLQ0599J680	COIL 68UH	1	
L3004	VLQ0599J680	COIL 68UH	1	
L3005	VLQ0599J121	COIL 120UH	1	
L3006	VLQ0599J680	COIL 68UH	1	
L3007	VLQ0599J151	COIL 150UH	1	
L3009	VLQ0599J220	COIL 22UH	1	
L3011	VLQ0599J680	COIL 68UH	1	
L3012	VLQ0599J680	COIL 68UH	1	
L3501	VLQ0599J680	COIL 68UH	1	
L4002	VLQEL07F153J	COIL 15MH	1	
L4004	VLQ0599J121	COIL 120UH	1	
L4501	VLQ0599J100	COIL 10UH	1	
L7603	VLQ0599J330	COIL 33UH	1	
L7604	VLQ0599J330	COIL 33UH	1	
L7605	VLQ0599J330	COIL 33UH	1	
L7701	VLQ0599J680	COIL 68UH	1	
LB1150	VLP0056	FERRITE BEAD	1	
LB3501	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB3502	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB3503	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB3504	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4001	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4002	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4003	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4004	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB6001	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
P1101	VJS3306	AC INLET	1	⚠
P2001	VJS3837A002	CONNECTOR (FEMALE) 2P	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
P2002	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2501	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3501	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
P4001	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6001	VJS3905	DEW SENSOR CONNECTOR	1	
PK7301	VJR0777B007W	CONNECTOR (MALE) 7P	1	
PK7302	VJR0777B006W	CONNECTOR (MALE) 6P	1	
Q1001	2SD602A	TRANSISTOR	1	
Q1002	2SD1996	TRANSISTOR	1	
Q1003	2SD1996	TRANSISTOR	1	
Q1004	2SD1996	TRANSISTOR	1	
Q1005	2SD1996	TRANSISTOR	1	
Q1006	2SD1996	TRANSISTOR	1	
Q1007	2SD1996	TRANSISTOR	1	
Q1008	2SD601A	TRANSISTOR	1	
Q1180	2SB1030A	TRANSISTOR	1	
Q1181	2SD1996	TRANSISTOR	1	
Q1200	PS2561L2-1WL	TRANSISTOR	1	⚠
Q3001	2SB709A	TRANSISTOR	1	
Q4003	2SD1149	TRANSISTOR	1	
Q4004	2SD601A	TRANSISTOR	1	
Q4005	2SD602A-R	TRANSISTOR	1	
Q4006	2SB1321	TRANSISTOR	1	
Q4501	2SB709A	TRANSISTOR	1	
Q6001	PNB2301MBV	TRANSISTOR	1	
Q6002	PNB2301MAV	TRANSISTOR	1	
Q7701	2SB709A	TRANSISTOR	1	
QR1001	MUN2112	TRANSISTOR	1	
QR3003	MUN2213	TRANSISTOR	1	
QR3004	MUN2213	TRANSISTOR	1	
QR3008	MUN2213	TRANSISTOR	1	
QR3011	MUN2213	TRANSISTOR	1	
QR3501	MUN2212	TRANSISTOR	1	
QR3502	MUN2212	TRANSISTOR	1	
QR4001	MUN2111	TRANSISTOR	1	
QR4002	MUN2211	TRANSISTOR	1	
QR4004	MUN2212	TRANSISTOR	1	
QR4005	UN2215	TRANSISTOR-RESISTOR	1	
QR4006	UN2215	TRANSISTOR-RESISTOR	1	
QR4501	UN2215	TRANSISTOR-RESISTOR	1	
QR4502	UN2215	TRANSISTOR-RESISTOR	1	
QR4503	UN2215	TRANSISTOR-RESISTOR	1	
QR4505	MUN2113	TRANSISTOR	1	
QR6001	MUN2211	TRANSISTOR	1	
R1001	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R1002	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R1003	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R1004	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R1005	ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R1006	ERDS2TJ102	C.RESISTOR 1/4W 1K	1	

[illegible]	[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R1007	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1008	ERJ6GMYJ182	M.RESISTOR CH 1/10W 1.8K	1	
R1009	ERJ6GMYG683	M.RESISTOR CH 1/10W 68K	1	
R1010	ERJ6GMYG433	M.RESISTOR CH 1/10W 43K	1	
R1011	ERJ6GMYG752	M.RESISTOR CH 1/10W 7.5K	1	
R1012	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R1013	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1014	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R1120	ERC12AGM334	S.RESISTOR 1/2W 330K	1	⚠
R1150	ERX1SJR51	M.RESISTOR 1W 0.51	1	
R1151	ERDS2FJ331	C.RESISTOR 1/4W 330	1	
R1152	ERDS2FJ102	C.RESISTOR 1/4W 1K	1	
R1153	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1154	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1155	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1156	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1157	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1158	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1159	ERDS2FJ474	C.RESISTOR 1/4W 470K	1	
R1160	ERDS2FJ564	C.RESISTOR 1/4W 560K	1	
R1161	ERG1SJ223	M.RESISTOR 1W 22K	1	
R1162	ERG1SJ223	M.RESISTOR 1W 22K	1	
R1163	ERDS1TJ470	C.RESISTOR 1/2W 47	1	
R1180	ERDS2FJ222	C.RESISTOR 1/4W 2.2K	1	
R1181	ERDS2FJ222	C.RESISTOR 1/4W 2.2K	1	
R1182	ERDS2TJ101	C.RESISTOR 1/4W 100	1	
R1183	ERDS2TJ104	C.RESISTOR 1/4W 100K	1	
R1184	ERDS2FJ105	C.RESISTOR 1/4W 1M	1	
R1185	ERDS2FJ152	C.RESISTOR 1/4W 1.5K	1	
R1186	ERDS2FJ105	C.RESISTOR 1/4W 1M	1	
R1200	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R1201	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R1202	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R1203	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	
R1204	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	1	
R1205	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R1206	ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R2001	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R2002	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R2003	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2004	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R2005	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R2006	ERJ6GMYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R2007	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R2501	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R2502	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R2503	ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R2504	ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R2505	ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R2506	ERDS2TJ1R2	C.RESISTOR 1/4W 1.2	1	
R2507	ERDS2TJ1R5	C.RESISTOR 1/4W 1.5	1	
R2508	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R3001	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3002	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	

[illegible]	[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R3003	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R3004	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3005	ERJ6GMYJ224	M.RESISTOR CH 1/10W 220K	1	
R3006	ERJ6GMYJ684	M.RESISTOR CH 1/10W 680K	1	
R3007	ERDS2TJ471	C.RESISTOR 1/4W 470	1	
R3008	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R3009	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3010	ERJ6GMYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R3013	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R3014	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3015	ERJ6GMYJ391	M.RESISTOR CH 1/10W 390	1	
R3016	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3017	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3022	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R3023	ERDS2TJ391	C.RESISTOR 1/4W 390	1	
R3026	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3027	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3028	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R3030	ERJ6GMYG301	M.RESISTOR CH 1/10W 300	1	
R3031	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R3043	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R3044	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R3045	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3046	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R3047	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R3048	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3050	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R3052	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R3055	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R3501	ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R3502	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	1	
R3504	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R3505	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R4001	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4002	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4004	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R4006	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R4007	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4008	ERJ6GMYJ182	M.RESISTOR CH 1/10W 1.8K	1	
R4009	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R4010	ERJ6GMYK225	M.RESISTOR CH 1/10W 2.2M	1	
R4012	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4013	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4014	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4015	ERJ6GMYJ391	M.RESISTOR CH 1/10W 390	1	
R4016	ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R4017	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R4018	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4019	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4020	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4021	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4028	ERJ6GMYJ163	M.RESISTOR CH 1/10W 16K	1	
R4029	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4030	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R4031	ERJ6GMYJ241	M.RESISTOR CH 1/10W 240	1	
R4032	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4033	ERJ6GMYJ334	M.RESISTOR CH 1/10W 330K	1	
R4037	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R4038	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R4039	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4040	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4041	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4042	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R4043	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4044	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4501	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4502	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4505	ERJ6GMYK335	M.RESISTOR CH 1/10W 3.3M	1	
R4506	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4507	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R4508	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4509	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4510	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4511	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4513	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R4514	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4515	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4516	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4517	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4518	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4519	ERDS2TJ2R2	C.RESISTOR 1/4W 2.2	1	
R4520	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4521	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R4522	ERJ6RBD393	M.RESISTOR CH 1/10W 39K	1	
R4523	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4524	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R4525	ERJ6GMYJ753	M.RESISTOR CH 1/10W 75K	1	
R4526	ERJ6GMYJ753	M.RESISTOR CH 1/10W 75K	1	
R6001	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6002	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6003	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6004	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6005	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6007	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6008	ERJ6GMYJ334	M.RESISTOR CH 1/10W 330K	1	
R6009	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R6010	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6011	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6012	ERJ6GMYG393	M.RESISTOR CH 1/10W 39K	1	
R6013	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6014	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6015	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6016	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6017	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6018	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R6019	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6021	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6022	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R6023	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6024	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6025	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6026	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6027	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6028	ERDS2TJ181	C.RESISTOR 1/4W 180	1	
R6029	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6031	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R6032	ERDS2TJ121	C.RESISTOR 1/4W 120	1	
R6033	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6034	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6035	ERJ6GMYJ244	M.RESISTOR CH 1/10W 240K	1	
R7301	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
R7304	ERJ6GEYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R7305	ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R7306	ERJ6GEYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R7307	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
R7308	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
R7309	ERJ6GEYG221	M.RESISTOR CH 1/10W 220	1	
R7311	ERJ6GEYJ752	M.RESISTOR CH 1/10W 7.5K	1	
R7312	ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R7313	ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R7314	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
R7315	ERJ6GEYG432	M.RESISTOR CH 1/10W 4.3K	1	
R7316	ERJ6GEYG682	M.RESISTOR CH 1/10W 6.8K	1	
R7317	ERJ6GEYG432	M.RESISTOR CH 1/10W 4.3K	1	
R7318	ERJ6GEYG432	M.RESISTOR CH 1/10W 4.3K	1	
R7319	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
R7320	ERJ6GEYG332	M.RESISTOR CH 1/10W 3.3K	1	
R7501	ERJ6GMYJ823	M.RESISTOR CH 1/10W 82K	1	
R7504	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7505	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R7506	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R7507	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R7508	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R7509	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R7510	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R7512	ERDS2TJ150	C.RESISTOR 1/4W 15	1	
R7514	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R7515	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R7516	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R7517	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R7518	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R7519	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R7520	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R7521	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R7522	ERJ6GMYJ563	M.RESISTOR CH 1/10W 56K	1	
R7601	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R7602	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R7603	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7604	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7605	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7606	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7607	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R7609	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7610	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7611	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7701	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7704	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7708	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R7709	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
S2001	VSS0565	MODE SWITCH	1	
S6001	VES0834	S-TAB SWITCH	1	
S7501	EVQPC105K	SWITCH	1	
S7502	EVQ11L07B	SWITCH	1	
S7505	EVQ11L07B	SWITCH	1	
S7506	EVQ11L07B	SWITCH	1	
S7507	EVQ11L07B	SWITCH	1	
S7508	EVQ11404M	SWITCH	1	
S7509	EVQ11404M	SWITCH	1	
S7510	EVQ11L07B	SWITCH	1	
S7511	EVQ11L07B	SWITCH	1	
S7512	EVQ11L07B	SWITCH	1	
S7513	EVQ11L07B	SWITCH	1	
S7514	EVQ11L07B	SWITCH	1	
T1150	ETE28K131AZ	SWITCHING TRANSFORMER	1	⚠
T4002	VLT0895	TRANSFORMER	1	
TH1001	VRT0162M220	THERMISTOR	1	
TU7601	ENG57806G1	TUNER	1	⚠
VR7301	EVNCBAA00B14	V.RESISTOR	1	
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X3002	VSX0160	CRYSTAL OSCILLATOR	1	
X6001	VSX0660	CRYSTAL OSCILLATOR	1	
X6002	VSX0365	CRYSTAL OSCILLATOR	1	
X7301	VSX1086	CRYSTAL OSCILLATOR	1	
		MISCELLANEOUS		
.	TP00351-51	FUSE HOLDER	2	
.	VSC4998	HA ANGLE	1	
.	VSC4999	SHIELD CASE (MIDDLE)	1	
.	VMP4894	SUPPORT ANGLE	1	FOR DECODER C.B.A.
■	VEP06D47B	MAIN C.B.A.		⚠ (RTL)
				NV-FJ600EA
B6001	CR2354-1GUF	LITHIUM BATTERY	1	
C1001	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1002	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1004	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1005	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C1006	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1007	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1008	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C1010	ECA1CHG101	E.CAPACITOR 16V 100U	1	
C1011	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C1013	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1014	ECA1EHG470	E.CAPACITOR 25V 47U	1	
C1015	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C1016	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1120	ECKMNA331MBV	CERAMIC CAPACITOR	1	⚠
C1121	ECKMNA331MBV	CERAMIC CAPACITOR	1	⚠
C1122	ECQU2A104MVA	P.CAPACITOR 250V 0.1U	1	⚠
C1124	ECKMNA102MEV	CERAMIC CAPACITOR	1	⚠
C1132	ECQU2A104MVA	P.CAPACITOR 250V 0.1U	1	⚠
C1140	ECEC2GG680	E.CAPACITOR 400V 68U	1	
C1150	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C1151	ECCZ3A101KGE	C.CAPACITOR 1KV 100P	1	
C1152	ECKD2H103PU	C.CAPACITOR 500V 0.01U	1	
C1153	ECA1VGE470X	E.CAPACITOR 35V 47U	1	
C1180	ECEA0JGE331	E.CAPACITOR 6.3V 330U	1	
C1181	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C1200	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C1201	ECQB1H822JF	P.CAPACITOR 50V 8200P	1	
C1230	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1231	ECEA1HGE470	E.CAPACITOR 50V 47U	1	
C1232	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1250	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1251	VCEA1EJH821	E.CAPACITOR 25V 820U	1	
C1252	VCEA1EJC331	E.CAPASITOR 25V 330U	1	
C1260	ECKD2H101KB	C.CAPACITOR 500V 100P	1	
C1261	EEUFA1A182	E.CAPACITOR 10V 1800U	1	
C1262	VCEA1AJC331	E.CAPACITOR 10V 330U	1	
C1271	ECEA1VGE101	E.CAPACITOR 35V 100U	1	
C1272	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C1281	EEUFA1A391	E.CAPACITOR 10V 390U	1	
C2002	VCEA1HCB4R7	E.CAPACITOR 50V 4.7U	1	
C2003	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C2005	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C2006	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2007	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C2008	ECUM1C474KBN	C.CAPACITOR CH 16V 0.47U	1	
C2009	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C2010	ECUM1H392KBN	C.CAPACITOR CH 50V 3900P	1	
C2012	ECUM1H681JCN	C.CAPACITOR CH 50V 680P	1	
C2013	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2014	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2015	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C2501	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2502	ECEA1VKN4R7	E.CAPACITOR 35V 4.7U	1	
C2503	ECEA1VKN4R7	E.CAPACITOR 35V 4.7U	1	
C2504	ECEA1VKN4R7	E.CAPACITOR 35V 4.7U	1	
C2505	ECUM1H473ZFN	C.CAPACITOR CH 50V 0.047U	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C2506	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C2507	ECUM1E683KBN	C.CAPACITOR CH 25V 0.068U	1	
C2508	ECUM1C154KBN	C.CAPACITOR CH 16V 0.15U	1	
C2509	ECUM1C154KBN	C.CAPACITOR CH 16V 0.15U	1	
C2510	ECUM1C154KBN	C.CAPACITOR CH 16V 0.15U	1	
C2511	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C2512	VCEA1ECB470	E.CAPACITOR 25V 47U	1	
C3001	ECUM1H220JCN	C.CAPACITOR CH 50V 22P	1	
C3002	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C3003	ECUM1H821JCN	C.CAPACITOR CH 50V 820P	1	
C3004	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3005	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C3006	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C3007	ECUM1E563KBN	C.CAPACITOR CH 25V 0.056U	1	
C3008	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C3009	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C3010	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3011	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3012	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C3013	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3014	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3015	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C3016	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C3017	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C3019	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C3020	VCEA0JEC471	E.CAPACITOR 6.3V 470U	1	
C3022	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C3023	ECUM1H560JCN	C.CAPACITOR CH 50V 56P	1	
C3024	ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C3025	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C3027	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3028	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3033	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C3034	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3035	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3036	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3037	ECUM1H120JCN	C.CAPACITOR CH 50V 12P	1	
C3038	ECUM1H680JCN	C.CAPACITOR CH 50V 68P	1	
C3039	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C3040	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3044	VCEA0JCB470	E.CAPACITOR 6.3V 47U	1	
C3045	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C3046	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3048	VCEA1HCB3R3	E.CAPACITOR 50V 3.3U	1	
C3049	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C3050	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3051	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3052	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C3053	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C3054	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3056	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
C3057	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C3501	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3502	ECEA0JKS470	E.CAPACITOR 6.3V 47U	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C3503	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3504	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C3505	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3506	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C3507	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3508	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3509	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C3510	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C4005	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	1	
C4006	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	1	
C4007	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C4008	VCEA1HCBR33	E.CAPACITOR 50V 0.33U	1	
C4009	VCEA0JCB470	E.CAPACITOR 6.3V 47U	1	
C4011	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4012	ECUM1H273KBN	C.CAPACITOR CH 50V 0.027U	1	
C4013	ECUM1H682KBN	C.CAPACITOR CH 50V 6800P	1	
C4024	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4025	VCEA1ECB4R7	E.CAPACITOR 25V 4.7U	1	
C4026	ECUM1H272KBN	C.CAPACITOR CH 50V 2700P	1	
C4027	ECUM1H122JCN	C.CAPACITOR CH 50V 1200P	1	
C4028	VCEA1HCB010	E.CAPACITOR 50V 1U	1	
C4029	VCEA0JCB220	E.CAPACITOR 6.3V 22U	1	
C4030	ECUM1H822KBN	C.CAPACITOR CH 50V 8200P	1	
C4031	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C4037	ECUM1H152KBN	C.CAPACITOR CH 50V 1500P	1	
C4038	ECUM1H223KBN	C.CAPACITOR CH 50V 0.022U	1	
C4039	VCEA0JCB221	E.CAPACITOR 6.3V 220U	1	
C4040	ECKF1H102KB	C.CAPACITOR 50V 1000P	1	
C4041	ECQB1H223JF	P.CAPACITOR 50V 0.022U	1	
C4043	ECUM1H273KBN	C.CAPACITOR CH 50V 0.027U	1	
C4045	ECUM1H222JCN	C.CAPACITOR CH 50V 2200P	1	
C4046	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C4501	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4502	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4503	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4504	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4505	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4506	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4507	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4508	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4509	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4510	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4511	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C4512	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C4513	VCEA1HCBR22	E.CAPACITOR 50V 0.22U	1	
C4514	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C4515	VCEA1HCBR47	E.CAPACITOR 50V 0.47U	1	
C4516	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C4517	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C4520	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C4521	ECEA1CKS470	E.CAPACITOR 16V 47U	1	
C4522	ECUM1H561JCN	C.CAPACITOR CH 50V 560P	1	
C4523	ECUM1H103KBN	C.CAPACITOR CH 50V 0.01U	1	
C4524	ECEA0JKS331	E.CAPACITOR 6.3V 330U	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C4525	ECUM1H471JCN	C.CAPACITOR CH 50V 470P	1	
C4526	VCEA1HCB2R2	E.CAPACITOR 50V 2.2U	1	
C4527	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4528	VCEA1CCB470	E.CAPACITOR 16V 47U	1	
C4529	ECUM1H562KBN	C.CAPACITOR CH 50V 5600P	1	
C4530	VCEA1CCB100	E.CAPACITOR 16V 10U	1	
C4531	ECUM1H562KBN	C.CAPACITOR CH 50V 5600P	1	
C6001	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C6002	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C6003	ECUM1H101JCN	C.CAPACITOR CH 50V 100P	1	
C6004	ECUM1H150JCN	C.CAPACITOR CH 50V 15P	1	
C6005	ECUM1H180JCN	C.CAPACITOR CH 50V 18P	1	
C6006	ECUM1H180JCN	C.CAPACITOR CH 50V 18P	1	
C6007	ECUM1H100DCN	C.CAPACITOR CH 50V 10P	1	
C6008	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6010	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C6011	ECUM1H221JCN	C.CAPACITOR CH 50V 220P	1	
C6013	VCEA0JEC471	E.CAPACITOR 6.3V 470U	1	
C6015	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C6020	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7301	ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C7302	VCEA0JAW101	E.CAPACITOR 6.3V 100U	1	
C7304	VCEA0JAW101	E.CAPACITOR 6.3V 100U	1	
C7305	ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C7306	ECUX1H330JCV	C.CAPACITOR CH 50V 33P	1	
C7307	ECUX1H103ZFV	C.CAPACITOR CH 50V 0.01U	1	
C7308	ECEA1HKA2R2	E.CAPACITOR 50V 2.2U	1	
C7311	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
C7312	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C7313	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C7315	ECUM1E104KBN	C.CAPACITOR CH 25V 0.1U	1	
C7316	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C7317	VCEA1CAW100	E.CAPACITOR 16V 10U	1	
C7318	VCEA0JAW470	E.CAPACITOR 6.3V 47U	1	
C7319	VCEA1CAW100	E.CAPACITOR 16V 10U	1	
C7320	VCEA1CAW100	E.CAPACITOR 16V 10U	1	
C7324	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C7325	ECUX1C104ZFV	C.CAPACITOR CH 16V 0.1U	1	
C7341	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C7342	ECUX1H472KBV	C.CAPACITOR CH 50V 4700P	1	
C7502	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7503	ECUM1H120JCN	C.CAPACITOR CH 50V 12P	1	
C7504	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7505	VCEA1HCB100	E.CAPACITOR 50V 10U	1	
C7601	ECUM1C224ZFN	C.CAPACITOR CH 16V 0.22U	1	
C7605	VCEA1HCB100	E.CAPACITOR 50V 10U	1	
C7606	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C7607	ECUM1H330JCN	C.CAPACITOR CH 50V 33P	1	
C7608	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7609	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7611	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7612	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7613	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	
C7701	VCEA0JCB101	E.CAPACITOR 6.3V 100U	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
C7702	ECUM1H104ZFN	C.CAPACITOR CH 50V 0.1U	1	
C7705	ECUM1C105ZFN	C.CAPACITOR CH 16V 1U	1	
C7706	ECUM1H103ZFN	C.CAPACITOR CH 50V 0.01U	1	
C7707	ECUM1H222KBN	C.CAPACITOR CH 50V 2200P	1	
C7708	ECUM1H102KBN	C.CAPACITOR CH 50V 1000P	1	
D1001	MA4051N-M	DIODE	1	
D1002	1SS254	DIODE	1	
D1004	MA4130N-L	DIODE	1	
D1005	MA4051N-M	DIODE	1	
D1006	1SS254	DIODE	1	
D1140	S1WBA80-4062	BRIDGE DIODE	1	
D1150	11EQS04	DIODE	1	
D1151	MA7300B	DIODE	1	
D1152	AP01C	DIODE	1	
D1153	MA185	DIODE	1	
D1180	1SS254	DIODE	1	
D1200	1SS254	DIODE	1	
D1201	1SS254	DIODE	1	
D1230	ERA22-04	DIODE	1	
D1250	RL2ZP	DIODE	1	
D1261	21DQ06FC4	DIODE	1	
D1270	ERA22-04	DIODE	1	
D1280	11EQS06	DIODE	1	
D2001	1SS254	DIODE	1	
D2002	1SS254	DIODE	1	
D2003	1SS254	DIODE	1	
D2501	MA723VT	DIODE	1	
D6001	1SS254	DIODE	1	
D6002	1SS254	DIODE	1	
D6003	MA700A	DIODE	1	
D6004	RB441P	DIODE	1	
D6005	RB441P	DIODE	1	
D6006	1SS254	DIODE	1	
D6007	SIR505S	DIODE	1	
D6008	1SS254	DIODE	1	
D7501	1SS254	DIODE	1	
D7502	MA4220N	DIODE	1	
D7601	MA4300N-M	DIODE	1	
D7702	1SS254	DIODE	1	
DP7501	VSL0543	DISPLAY TUBE	1	
F1101	XBA2C16TB0	FUSE	1	⚠
FL7301	VLF0633	FILTER	1	
IC1001	PQ20VB2E	IC	1	
IC1150	STRF6552	IC	1	
IC1200	TL431CLP	IC	1	
IC2501	AN3811NK	IC	1	
IC3001	AN3531NFBS	IC	1	
IC3501	AN3368SB	IC	1	
IC4501	TDA9605H	IC	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
IC6001	MN101D02GMC	IC	1	
IC6002	RPI354N	IC	1	
IC6003	RPI354N	IC	1	
IC6004	PNA4611M08VT	PHOTO DIODE	1	
IC6005	RN5VS42CA	IC	1	
IC7301	TDA9874AH	IC	1	
IC7302	PST7043	IC	1	
IC7501	M35502AFP	IC	1	
IP1001	UNH000300A	IC PROTECTOR	1	⚠
IP1002	UNH000300A	IC PROTECTOR	1	⚠
IP1003	VSF0015A025	IC PROTECTOR	1	⚠
IP1004	UNH000300A	IC PROTECTOR	1	⚠
IP1280	VSF0015A10	FUSE	1	⚠
JK3001	VJJ0680	PIN JACK 3-PIN	1	
JK3002	VJJ0675	PIN JACK 3-PIN	1	
K3007	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K3502	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K4006	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K4009	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K6002	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
K7301	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
K7302	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
K7303	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
K7601	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
L1120	ELF15N003A	LINE FILTER	1	⚠
L1121	ELF15N003A	LINE FILTER	1	⚠
L1230	ELESE101KA	COIL 100UH	1	
L1250	VLQ0655K220	COIL 22UH	1	
L1260	VLQ0655K220	COIL 22UH	1	
L1270	ELESE101KA	COIL 100UH	1	
L2501	VLQ0599J680	COIL 68UH	1	
L3001	VLQ0599J680	COIL 68UH	1	
L3002	VLQ0599J390	COIL 39UH	1	
L3003	VLQ0599J680	COIL 68UH	1	
L3004	VLQ0599J680	COIL 68UH	1	
L3005	VLQ0599J121	COIL 120UH	1	
L3006	VLQ0599J680	COIL 68UH	1	
L3007	VLQ0599J151	COIL 150UH	1	
L3009	VLQ0599J220	COIL 22UH	1	
L3011	VLQ0599J680	COIL 68UH	1	
L3012	VLQ0599J680	COIL 68UH	1	
L3501	VLQ0599J680	COIL 68UH	1	
L4002	VLQEL07F153J	COIL 15MH	1	
L4004	VLQ0599J121	COIL 120UH	1	
L4501	VLQ0599J100	COIL 10UH	1	
L7302	VLQ0599J1R0	COIL 1UH	1	
L7601	VLQ0599J100	COIL 10UH	1	
L7603	VLQ0599J330	COIL 33UH	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
L7604	VLQ0599J330	COIL 33UH	1	
L7605	VLQ0599J330	COIL 33UH	1	
L7607	VLQ0599J2R2	COIL 2.2UH	1	
L7701	VLQ0599J680	COIL 68UH	1	
LB1150	VLP0056	FERRITE BEAD	1	
LB3501	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB3502	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB3503	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB3504	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4001	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4002	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4003	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB4004	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB6001	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
LB7301	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
LB7303	ERJ6GEY0R00	M.RESISTOR CH 1/10W 0	1	
P1101	VJS3306	AC INLET	1	⚠
P2001	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P2002	VJP3835A012	CONNECTOR (MALE) 12P	1	
P2501	VJS3537A009G	CONNECTOR (FEMALE) 9P	1	
P3501	VJS3537A010G	CONNECTOR (FEMALE) 10P	1	
P4001	VJS3537A006G	CONNECTOR (FEMALE) 6P	1	
P4002	VJS3837A002	CONNECTOR (FEMALE) 2P	1	
P6001	VJS3905	DEW SENSOR CONNECTOR	1	
PK7301	VJR0777B007W	CONNECTOR (MALE) 7P	1	
PK7302	VJR0777B006W	CONNECTOR (MALE) 6P	1	
Q1001	2SD602A	TRANSISTOR	1	
Q1002	2SD1996	TRANSISTOR	1	
Q1003	2SD1996	TRANSISTOR	1	
Q1004	2SD1996	TRANSISTOR	1	
Q1005	2SD1996	TRANSISTOR	1	
Q1006	2SD1996	TRANSISTOR	1	
Q1007	2SD1996	TRANSISTOR	1	
Q1008	2SD601A	TRANSISTOR	1	
Q1180	2SB1030A	TRANSISTOR	1	
Q1181	2SD1996	TRANSISTOR	1	
Q1200	PS2561L2-1WL	TRANSISTOR	1	⚠
Q3001	2SB709A	TRANSISTOR	1	
Q4003	2SD1149	TRANSISTOR	1	
Q4004	2SD601A	TRANSISTOR	1	
Q4005	2SD602A-R	TRANSISTOR	1	
Q4006	2SB1321	TRANSISTOR	1	
Q4501	2SB709A	TRANSISTOR	1	
Q6001	PNB2301MBV	TRANSISTOR	1	
Q6002	PNB2301MAV	TRANSISTOR	1	
Q7701	2SB709A	TRANSISTOR	1	
QR1001	MUN2112	TRANSISTOR	1	
QR3003	MUN2213	TRANSISTOR	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
QR3004	MUN2213	TRANSISTOR	1	
QR3008	MUN2213	TRANSISTOR	1	
QR3011	MUN2213	TRANSISTOR	1	
QR3501	MUN2212	TRANSISTOR	1	
QR3502	MUN2212	TRANSISTOR	1	
QR4001	MUN2111	TRANSISTOR	1	
QR4002	MUN2211	TRANSISTOR	1	
QR4004	MUN2212	TRANSISTOR	1	
QR4005	UN2215	TRANSISTOR-RESISTOR	1	
QR4006	UN2215	TRANSISTOR-RESISTOR	1	
QR4501	UN2215	TRANSISTOR-RESISTOR	1	
QR4502	UN2215	TRANSISTOR-RESISTOR	1	
QR4503	UN2215	TRANSISTOR-RESISTOR	1	
QR4505	MUN2113	TRANSISTOR	1	
QR6001	MUN2211	TRANSISTOR	1	
R1001	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R1002	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R1003	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R1004	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R1005	ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R1006	ERDS2TJ102	C.RESISTOR 1/4W 1K	1	
R1007	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1008	ERJ6GMYJ182	M.RESISTOR CH 1/10W 1.8K	1	
R1009	ERJ6GMYG683	M.RESISTOR CH 1/10W 68K	1	
R1010	ERJ6GMYG433	M.RESISTOR CH 1/10W 43K	1	
R1011	ERJ6GMYG752	M.RESISTOR CH 1/10W 7.5K	1	
R1012	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R1013	ERDS2TJ103	C.RESISTOR 1/4W 10K	1	
R1014	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R1120	ERC12AGM334	S.RESISTOR 1/2W 330K	1	⚠
R1150	ERX1SJR51	M.RESISTOR 1W 0.51	1	
R1151	ERDS2FJ331	C.RESISTOR 1/4W 330	1	
R1152	ERDS2FJ102	C.RESISTOR 1/4W 1K	1	
R1153	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1154	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1155	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1156	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1157	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1158	ERDS2FJ123	C.RESISTOR 1/4W 12K	1	
R1159	ERDS2FJ474	C.RESISTOR 1/4W 470K	1	
R1160	ERDS2FJ564	C.RESISTOR 1/4W 560K	1	
R1161	ERG1SJ223	M.RESISTOR 1W 22K	1	
R1162	ERG1SJ223	M.RESISTOR 1W 22K	1	
R1163	ERDS1TJ470	C.RESISTOR 1/2W 47	1	
R1180	ERDS2FJ222	C.RESISTOR 1/4W 2.2K	1	
R1181	ERDS2FJ222	C.RESISTOR 1/4W 2.2K	1	
R1182	ERDS2TJ101	C.RESISTOR 1/4W 100	1	
R1183	ERDS2TJ104	C.RESISTOR 1/4W 100K	1	
R1184	ERDS2FJ105	C.RESISTOR 1/4W 1M	1	
R1185	ERDS2FJ152	C.RESISTOR 1/4W 1.5K	1	
R1186	ERDS2FJ105	C.RESISTOR 1/4W 1M	1	
R1200	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R1201	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	

[illegible]	[illegible]	[illegible]	[illegible]	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R1202	ERJ6GMYG222	M.RESISTOR CH 1/10W 2.2K	1	
R1203	ERJ6GMYG272	M.RESISTOR CH 1/10W 2.7K	1	
R1204	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	1	
R1205	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R1206	ERDS2TJ222	C.RESISTOR 1/4W 2.2K	1	
R2001	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R2002	ERJ6GMYJ105	M.RESISTOR CH 1/10W 1M	1	
R2003	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R2004	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R2005	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R2006	ERJ6GMYJ682	M.RESISTOR CH 1/10W 6.8K	1	
R2007	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R2501	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R2502	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R2503	ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R2504	ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R2505	ERDS2TJ330	C.RESISTOR 1/4W 33	1	
R2506	ERDS2TJ1R2	C.RESISTOR 1/4W 1.2	1	
R2507	ERDS2TJ1R5	C.RESISTOR 1/4W 1.5	1	
R2508	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R3001	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3002	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3003	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R3004	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3005	ERJ6GMYJ224	M.RESISTOR CH 1/10W 220K	1	
R3006	ERJ6GMYJ684	M.RESISTOR CH 1/10W 680K	1	
R3007	ERDS2TJ471	C.RESISTOR 1/4W 470	1	
R3008	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R3009	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3010	ERJ6GMYJ822	M.RESISTOR CH 1/10W 8.2K	1	
R3013	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R3014	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3015	ERJ6GMYJ391	M.RESISTOR CH 1/10W 390	1	
R3016	ERJ6GMYJ152	M.RESISTOR CH 1/10W 1.5K	1	
R3017	ERJ6GMYJ750	M.RESISTOR CH 1/10W 75	1	
R3022	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R3023	ERDS2TJ391	C.RESISTOR 1/4W 390	1	
R3026	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3027	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R3028	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R3030	ERJ6GMYG301	M.RESISTOR CH 1/10W 300	1	
R3031	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R3043	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R3044	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R3045	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3046	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R3047	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R3048	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R3050	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R3052	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R3055	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R3501	ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R3502	ERJ6GMYJ561	M.RESISTOR CH 1/10W 560	1	
R3504	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R3505	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R4001	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4002	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4004	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R4006	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R4007	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4008	ERJ6GMYJ182	M.RESISTOR CH 1/10W 1.8K	1	
R4009	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R4010	ERJ6GMYK225	M.RESISTOR CH 1/10W 2.2M	1	
R4012	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4013	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4014	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4015	ERJ6GMYJ391	M.RESISTOR CH 1/10W 390	1	
R4016	ERJ6GMYJ331	M.RESISTOR CH 1/10W 330	1	
R4017	ERJ6GMYJ122	M.RESISTOR CH 1/10W 1.2K	1	
R4018	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4019	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4020	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4021	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4028	ERJ6GMYJ163	M.RESISTOR CH 1/10W 16K	1	
R4029	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4030	ERJ6GMYJ333	M.RESISTOR CH 1/10W 33K	1	
R4031	ERJ6GMYJ241	M.RESISTOR CH 1/10W 240	1	
R4032	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4033	ERJ6GMYJ334	M.RESISTOR CH 1/10W 330K	1	
R4037	ERJ6GMYJ472	M.RESISTOR CH 1/10W 4.7K	1	
R4038	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R4039	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4040	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4041	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4042	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R4043	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4044	ERJ6GMYJ471	M.RESISTOR CH 1/10W 470	1	
R4501	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4502	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4505	ERJ6GMYK335	M.RESISTOR CH 1/10W 3.3M	1	
R4506	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4507	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R4508	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4509	ERJ6GMYJ473	M.RESISTOR CH 1/10W 47K	1	
R4510	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4511	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4513	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R4514	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4515	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4516	ERJ6GMYJ104	M.RESISTOR CH 1/10W 100K	1	
R4517	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4518	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R4519	ERDS2TJ2R2	C.RESISTOR 1/4W 2.2	1	
R4520	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R4521	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R4522	ERJ6RBD393	M.RESISTOR CH 1/10W 39K	1	
R4523	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R4524	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R4525	ERJ6GMYJ753	M.RESISTOR CH 1/10W 75K	1	
R4526	ERJ6GMYJ753	M.RESISTOR CH 1/10W 75K	1	
R6001	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6002	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6003	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6004	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6005	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6007	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6008	ERJ6GMYJ334	M.RESISTOR CH 1/10W 330K	1	
R6009	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R6010	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R6011	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6012	ERJ6GMYG393	M.RESISTOR CH 1/10W 39K	1	
R6013	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6014	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6015	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6016	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6017	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R6018	ERJ6GMYJ183	M.RESISTOR CH 1/10W 18K	1	
R6019	ERJ6GMYJ272	M.RESISTOR CH 1/10W 2.7K	1	
R6020	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R6021	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6022	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6023	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6024	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R6025	ERJ6GMYJ223	M.RESISTOR CH 1/10W 22K	1	
R6026	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6027	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6028	ERDS2TJ181	C.RESISTOR 1/4W 180	1	
R6029	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R6031	ERJ6GMYJ393	M.RESISTOR CH 1/10W 39K	1	
R6032	ERDS2TJ121	C.RESISTOR 1/4W 120	1	
R6033	ERJ6GMYJ273	M.RESISTOR CH 1/10W 27K	1	
R6034	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R6035	ERJ6GMYJ244	M.RESISTOR CH 1/10W 240K	1	
R7302	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R7305	ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R7306	ERJ6GEYJ101	M.RESISTOR CH 1/10W 100	1	
R7316	ERJ3GEYJ103	M.RESISTOR CH 1/16W 10K	1	
R7318	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R7325	ERJ3GEY0R00	M.RESISTOR CH 1/16W 0	1	
R7327	ERJ3GEYG822	M.RESISTOR CH 1/16W 8.2K	1	
R7328	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R7329	ERJ3GEYJ221	M.RESISTOR CH 1/16W 220	1	
R7501	ERJ6GMYJ823	M.RESISTOR CH 1/10W 82K	1	
R7504	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7505	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R7506	ERJ6GMYJ123	M.RESISTOR CH 1/10W 12K	1	
R7507	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R7508	ERJ6GMYJ221	M.RESISTOR CH 1/10W 220	1	
R7509	ERJ6GMYJ103	M.RESISTOR CH 1/10W 10K	1	
R7510	ERJ6GMYJ271	M.RESISTOR CH 1/10W 270	1	
R7512	ERDS2TJ150	C.RESISTOR 1/4W 15	1	
R7514	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
R7515	ERJ6GMYJ392	M.RESISTOR CH 1/10W 3.9K	1	
R7516	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R7517	ERJ6GMYJ332	M.RESISTOR CH 1/10W 3.3K	1	
R7518	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R7519	ERJ6GMYJ562	M.RESISTOR CH 1/10W 5.6K	1	
R7520	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R7521	ERJ6GMYJ153	M.RESISTOR CH 1/10W 15K	1	
R7522	ERJ6GMYJ563	M.RESISTOR CH 1/10W 56K	1	
R7601	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R7602	ERDS2TJ331	C.RESISTOR 1/4W 330	1	
R7603	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7604	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7605	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7606	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7607	ERJ6GMZ0R00	M.RESISTOR CH 1/10W 0	1	
R7609	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7610	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7611	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7701	ERJ6GMYJ102	M.RESISTOR CH 1/10W 1K	1	
R7704	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
R7708	ERJ6GMYJ222	M.RESISTOR CH 1/10W 2.2K	1	
R7709	ERJ6GMYJ101	M.RESISTOR CH 1/10W 100	1	
S2001	VSS0565	MODE SWITCH	1	
S6001	VES0834	S-TAB SWITCH	1	
S7501	EVQPC105K	SWITCH	1	
S7502	EVQ11L07B	SWITCH	1	
S7505	EVQ11L07B	SWITCH	1	
S7506	EVQ11L07B	SWITCH	1	
S7507	EVQ11L07B	SWITCH	1	
S7508	EVQ11404M	SWITCH	1	
S7509	EVQ11404M	SWITCH	1	
S7510	EVQ11L07B	SWITCH	1	
S7511	EVQ11L07B	SWITCH	1	
S7512	EVQ11L07B	SWITCH	1	
S7513	EVQ11L07B	SWITCH	1	
S7514	EVQ11L07B	SWITCH	1	
T1150	ETE28K131AZ	SWITCHING TRANSFORMER	1	⚠
T4002	VLT0895	TRANSFORMER	1	
TH1001	VRT0162M220	THERMISTOR	1	
TU7601	ENG57806G1	TUNER	1	⚠
X3001	VSX0162	CRYSTAL OSCILLATOR	1	
X3002	VSX0160	CRYSTAL OSCILLATOR	1	
X6001	VSX0660	CRYSTAL OSCILLATOR	1	
X6002	VSX0365	CRYSTAL OSCILLATOR	1	
X7302	VSX0953	CRYSTAL OSCILLATOR	1	
		MISCELLANEOUS		
.	TP00351-51	FUSE HOLDER	2	

Ref. No.	Part No.	Part Name& Description	Pcs	Remarks
.	VSC4998	HA ANGLE	1	
.	VSC4999	SHIELD CASE (MIDDLE)	1	
.	VSC4752	SHIELD CASE (MAIN)	1	FOR NICAM DECODER C.B.A.
■	----------	CYLINDER STATOR C.B.A.		
		MISCELLANEOUS		
.	HW-300A-DF	HALL IC	1	
.	VJS3537B009G	CONNECTOR (FEMALE) 9P	1	

AUDIO SIGNAL PATH

L7302 1u
C7302 6V100
X7302 VSX0953
C7316 0.1
R7327 8200
R7325 0
TEST1 (22) 3.3
VDDA2 (21)
VSSA2 (20)
VDDR2 (19)
1 REF (18) 2.0
TEST2 (17)
TP3 (16)
XTAL I (15) 1.6
XTAL O (14) 1.6
ADDR1 (13)
PCLK (12) 0.4
TP1 (11)
NICAM (10) 0.4
TP2 (9)
VDEC2 (8) 0
VSSD2 (7)
VDDD1 (6) 4.8
VSSD1 (5)
VSSA1 (4)
VDDA1 (3) 4.9
OUT R (2) 2.5
OUT L (1) 2.5
LB7301 0
C7325 0.1
C7324 0.1

SIF2 (23) 2.0
C7315 0.1
VREF1 (24) 2.0
SIF1 (25) 2.0
CRESET (26) 4.9
VSSA3 (27)
VDDA3 (28) 4.9
SCL (29) 4.8
SDA (30) 4.6
SDO (31) 1.2
WS (32) 1.2
SCK (33) 1.2

INPUT SWITCH AGC, ADC
FM/AM DEMODULATION
NICAM DEMODULATION
NICAM DECODER
DEMATRIX
IDENTIFI-CATION
2 CHANNEL ANALOG/ SATELLITE DECODER
DIGITAL SELECTOR
LEVEL ADJUST
IIC BUS INTERFACE
IIC BUS INTERFACE
POST FILTER 3 DACS
2 CHANNEL OUTPUT BUFFERS
MONO CHANNEL OUTPUT BUFFERS
ANALOG CROSSBAR SWITCH

SYS CLK (34) 1.2
VDDD3 (35) 4.8
VSSD3 (36)
P1 (37) 4.9
MONO IN (38) 2.4
EXTIR (39) 2.4
EXTIL (40) 2.4
VREF2 (41) 2.4
P2 (42) 4.9
OUT M (43) 2.5
VSSA4 (44)

IC7301
TDA9874AH

PK7301
QPSK/SIF 1
GND 2
TUNER AUDIO (N) 3
4
5
6
SW 5V 7
TO POWER SUPPLY/RF SECTION PK7301(B-9)
1.6
0
4.9
C7307 0.01
R7302 0
C7311 0

IC7302
PST7043
(RESET)
IN (1) 4.9
GND (2)
OUT (3) 4.9
L7301 0
C7308 50V2.2
C7312 0.1
R7305 100
R7306 100
C7305 33P
C7306 33P

PK7302
IIC CLOCK 1
IIC DATA 2
3
TUNER AUDIO (R) 4
GND 5
TUNER AUDIO (L) 6
TO POWER SUPPLY/RF SECTION PK7302(A-9)
4.8
4.6
0
0

FL7301
VLF0633
C7304 6V100
C7301 0.01
C7341 4700P
C7342 4700P

R7316 10K
LB7303 0
TL7301
TL7303
C7313 0.1
R7318 220
C7317 16V10
C7318 6V47
TL7304
R7328 220
R7329 220
C7319 16V10
C7320 16V10

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

CAUTION

THE STRIPED FRAME INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.

PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

Ⓡ :TO POWER SUPPLY/RF SECTION

Ⓣ :TO TIMER SECTION

HOT

P1101 VJS3306 — AC INLET

F1101 VSF0243C16

L1120 ELF15N003A

LB1122 0

C1121 330P

L1121 ELF15N003A

C1122 0.1

R1120 330K

C1132 0.1

D1140 S1WBA80-4062

C1140 400V 68

LB1126 0

R1160 560K

R1186 1M

R1159 470K

R1184 1M

LB1125 0

R1155 12K

R1156 12K

R1157 12K

R1158 12K

R1154 12K

R1153 12K

LB1123 0

C1120 330P

R1180 2200

R1181 2200

Q1180 2SB1030A (PROTECTOR)

Q1181 2SD1996 (PROTECTOR)

R1182 100

D1180 1SS254

C1180 6V330

R1183 100K

C1181 1000P

R1162 22K

R1161 22K

C1152 0.01

D1152 AP01CV2

LB1124 0

C1124 1000P

D1153 MA185

R1163 47

T1150 ETE28K131AZ

P1 P2 V1 V2

S7 S8 S3 S4 S6 S1 S2 S5

D1280 11EQS06

IP1280 VSF0015A10T

C1281 10V390

HEATER (+) Ⓡ

HEATER (-) ⓇⓉ

C1260 100P

D1261 21DQ06FC4

L1260 22u

C1261 10V1800

C1262 10V330

UNREG 5.9V Ⓡ

D1270 ERA22-04

L1270 100u

C1271 35V100

C1272 0.01

UNREG -29V Ⓣ

C1250 100P

D1250 RL2ZPLF-C4

L1250 22u

C1251 25V820

C1252 25V330

UNREG 16V Ⓡ

C1230 100P

D1230 ERA22-04

L1230 100u

C1231 50V47

C1232 0.01

UNREG 36V Ⓡ

IC1150 STRF6552LF

START O.V.P LATCH DRIVE REG T.S.D O.S.C

R1185 1500

C1153 35V47

D1151 MA7300B

LB1150 VLP0056

R1151 330

D1150 11EQS04

R1150 0.51

C1151 100P

D1200 1SS254

C1201 8200P

Q1200 PC123ZY2

R1200 270

R1204 560

R1203 2700

R1201 27K

R1202 2200

IC1200 TL431CLP

C1200 0.1

R1205 1K

D1201 1SS254

R1206 2200

R1152 1K

C1150 1000P

NOTE:THE MEASURMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE1:WHEN MEASURE THE VOLTAGE OR WAVEFORM ON THE POWER TRANSFORMER CIRCUIT,SET THE GND TERMINAL OF MEASURING POINT AS FOLLOWS.
PRIMARY SIDE..... ⏚
SECONDARY SIDE... ⏚

NOTE2:THE DC VOLTAGE INDICATED IN PRIMARY SIDE IS SHOWN THE VOLTAGE WHEN INPUT AC IS 240V.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

(P) :TO POWER TRANSFORMER SECTION
(S) :TO SYSTEM CONTROL & SERVO SECTION
(V) :TO LUMINANCE & CHROMINANCE/AUDIO SECTION
(H) :TO HEAD AMP SECTION
(T) :TO TIMER SECTION

IC1001
PQ20VB2E
IN OUT GND ON/OFF
15.9 14.3 1.2

Q1001
2SD602A
(POWER SAVE:OFF)
-12.9 -13.1 -12.3

R1002 5600
R1001 5600
R1009 68K
C1014 25V47
R1010 43K
R1011 7500
QR1001
MUN2112
(POWER SAVE H:OFF)
4.9 0 5.0

D1009 0
D1008 0
R1003 10K
R1004 10K

(S) CYL REG 14V
(S) CAP REG 14V
(P) HEATER(-)
(P) HEATER(+)
(S) POWER SAVE (H)
(S) SYS UNREG 5V
(T) PS HEATER(+)
(V) SW 12V

IP1003
VSF0015A025
TH1001
VRT0162M220
Q1006
2SD1996
(12V REG)
16.1 12.3 12.9
Q1005
2SD1996
(12V REG)
16.1 12.3 12.9
C1010 16V100
C1007 0.01
C1016 0.01
D1004 MA4130NL
C1008 16V47
R1007 10K
R1013 10K
R7601 330
R7602 330

(P) UNREG 16V
(S) POWER OFF (L)
(P) UNREG 36V
(S)(V) REG 5V
(S)(V)(H) VIDEO 5V
(V) SW 5V
(S) CYL UNREG 5.9V

IP1001
UNH000300A
Q1002
2SD1996
(5V REG)
5.6 5.2 5.9
Q1003
2SD1996
(5V REG)
C1006 6V100

(P) UNREG 5.9V

IP1002
UNH000300A
Q1004
2SD1996
(5V REG)
5.6 5.2 5.9
C1004 6V100
C1005 6V100
C1001 0.01
C1002 0.01
Q1008
2SD601A
(CURRENT LIMITER)
5.9 0.3
R1012 2200
C1015 0.1
R1014 22K
D1001 MA4051NM
R1005 1K
R1006 1K
D1002 1SS254

(S) GND
(V) GND
(H) GND
(T) GND
(S) GND(FG)
(S) GND(MOTOR)
(S) GND(CYL)
(V) CURR.LIMIT
(V) REG 12V
(S)(T) UNREG 5.9V

IP1004
UNH000300A
Q1007
2SD1996
(5V REG)
5.7 5.1 5.8
C1011 6V100
C1013 0.01
R1008 1800
D1005 MA4051NM
D1006 1SS254

(S) IIC DATA (A1)
(S) IIC CLOCK (A2)
(V) TUNER AUDIO(L) (A3)
(V) TUNER AUDIO(R) (A4)
(V) TUNER AUDIO(N) (A5)
(S) AFC S-CURVE (A6)
(V) TUNER VIDEO (A7)
(S) PAL BG (H) (A8)
(V) RFC AUDIO OUT (A9)
(V) RFC VIDEO OUT (A10)

L7606 0
C7611 0.01
C7613 6V100
L7604 33u
C7612 6V100
R7607 0
R7606 0
R7603 0
R7604 0
(EA) C7606 33P
(EA) C7607 33P
L7603 33u
C7609 0.01
C7608 6V100
C7605 50V10
D7601 MA4300NM
L7602 0
L7601 0:A 10u:EA

TU7601
TUNER UNIT
ENG57806G1
1 RF 5V
2 GND
3 DATA
4 CLOCK
5 RF 5V
6 VIDEO OUT (A10)
7 AUDIO OUT (A9)
8
9
10
11 CLOCK
12 DATA
13 GND
14 RF 5V
15 SW1
16 BTL 30V
17 IF OUT
18 IF IN
19 SW1
20 PAL BG (H) (A8)
21 TUNER AUDIO (A7)
22 SIF/QPSK (A6)
23 AFC S-CURVE (A5)
24 TUNER VIDEO (A4)
25 REG 5V (A3)

R7609 1K
L7605 33u
R7605 1K
C7601 0.22
(EA)
L7607 0:A 2.2u:EA

PK7301
1 SIF/QPSK
2 GND
3 TUNER AUDIO(N)
4
5
6
7 SW 5V
TO DECODER PACK PK7301(D-1):A
TO NICAM DECODER PACK PK7301(F-1):EA

R7610 0:A 100:EA
R7611 0:A 100:EA

PK7302
1 IIC CLOCK
2 IIC DATA
3
4 TUNER AUDIO(R)
5 GND
6 TUNER AUDIO(L)
TO DECODER PACK PK7302(C-1):A
TO NICAM DECODER PACK PK7302(D-1):EA

(A1) (A2)

IMPORTANT SAFETY NOTICE:
COMPONANTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SAME TYPE.

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

SYSTEM CONTROL & SERVO ICs DC VOLTAGE CHART (SP MODE)

Ref. No.	IC2501																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16				
STOP	15.1	15.1	15.3	1.0	5.0	1.1	1.1	0.5	2.5	1.4	0	3.8	3.8	3.8	0	15.1				
PLAY	15.0	15.0	15.3	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	15.0				
REC	15.0	15.0	15.3	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	15.0				
F.F	14.7	14.7	15.1	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	14.7				
REW	14.7	14.7	15.1	1.0	5.0	1.1	1.1	0.5	2.4	1.4	0	3.8	3.8	3.8	0	14.7				
Ref. No.	IC6001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	5.0	0	5.2	3.9	5.0	5.0	0	0.2	5.0	3.4	0	0	0	4.7	4.5	4.5	3.9	3.9	0	0
PLAY	5.0	0	2.5	2.5	5.0	5.0	0	0.2	0	3.1	0	0	0	4.6	4.4	4.4	3.9	3.8	0	0.4
REC	5.0	0	2.5	2.5	5.0	5.0	0	0.2	5.0	3.1	0	0	0	4.6	4.4	4.4	3.8	3.8	0	0.4
F.F	5.0	0	2.5	2.5	5.0	5.0	0	0.2	5.0	2.7	0	0	0	4.6	4.2	4.2	3.7	3.6	0	4.8
REW	5.0	0	2.5	2.5	5.0	5.0	0	0.2	5.0	2.7	0	0	0	4.6	4.2	4.2	3.7	3.6	0	4.8
Ref. No.	IC6001																			
MODE	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	0	0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	0	2.5	0	5.0	2.6	2.6	0	2.6
PLAY	4.0	0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	2.5	2.4	0	5.0	2.6	2.6	0	2.6
REC	4.0	0	2.5	0	5.0	4.9	5.0	0	2.5	0.2	0.2	0	2.5	2.4	0	5.0	2.6	2.6	0	2.6
F.F	4.9	0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	5.0	2.4	0	5.0	2.6	2.6	0	2.6
REW	4.9	5.0	2.5	0	5.0	0	0	0	2.5	5.0	5.0	0	5.0	2.4	0	5.0	2.6	2.6	0	2.5
Ref. No.	IC6001																			
MODE	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	2.7	5.0	0	0	0	5.0	1.9	0	1.9	1.7	5.1	2.5	2.6	0.7	0.1	0	0	0	4.3	0
PLAY	2.7	5.0	0	0	0	5.0	1.9	0	1.9	2.3	5.1	2.5	2.6	1.1	0.1	0	0	0	4.3	0
REC	2.7	5.0	0	0	0	5.0	1.9	0	1.9	1.7	5.1	2.5	2.6	1.2	0.1	0	0	0	4.3	0
F.F	2.7	5.0	0	0	0	5.0	1.9	0	1.9	2.1	5.1	2.5	2.6	0.9	0.3	0	0	0	3.8	0
REW	2.7	5.0	0	0	0	5.0	1.9	0	1.9	2.1	5.1	2.5	2.6	0.4	0.2	0	0	0	3.8	0
Ref. No.	IC6001																			
MODE	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
STOP	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	4.9	1.6	2.8
PLAY	5.0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	4.9	1.6	2.8
REC	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.9	2.5	2.5	0	4.9	1.6	2.8
F.F	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	0	1.6	2.8
REW	0	0.1	0	0	1.0	0	2.5	2.5	2.5	2.5	0	2.5	5.0	2.5	2.5	2.5	0	0	1.6	2.8
Ref. No.	IC6001																			
MODE	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
STOP	0	0	0	0	5.0	4.8	5.0	2.4	1.6	5.0	0	0	0	0	0	0	5.0	0	0	1.7
PLAY	0	0	0	0	5.0	4.8	5.0	2.4	4.0	5.0	0	0	0	0	0	0	5.0	2.5	0	5.0
REC	0	0	0	0	5.0	4.7	5.0	2.4	2.2	5.0	0	0	0	0	0	0	5.0	2.5	0	0
F.F	0	0	0	0	5.0	4.8	5.0	2.4	1.0	5.0	5.0	0	0	0	0	0	5.0	0	0	2.6
REW	0	0	0	0	5.0	4.8	5.0	2.4	3.3	5.0	5.0	0	0	0	0	0	5.0	0	0	3.7

Ref. No.	IC6002										IC6003									
MODE	1	2	3	4							1	2	3	4						
STOP	1.1	2.3	5.2	0							0	1.1	3.9	0						
PLAY	1.1	2.3	2.5	0							0	1.1	2.5	0						
REC	1.1	2.3	2.5	0							0	1.1	2.5	0						
F.F	1.1	2.3	2.5	0							0	1.1	2.5	0						
REW	1.1	2.3	2.5	0							0	1.1	2.5	0						
Ref. No.	IC6004										IC6005									
MODE	1	2	3								1	2	3	4	5					
STOP	5.0	0	5.0								5.0	5.0	0	0	0					
PLAY	5.0	0	5.0								5.0	5.0	0	0	0					
REC	5.0	0	5.0								5.0	5.0	0	0	0					
F.F	5.0	0	5.0								5.0	5.0	0	0	0					
REW	5.0	0	5.0								5.0	5.0	0	0	0					

SYSTEM CONTROL & SERVO TRs DC VOLTAGE CHART (SP MODE)

Ref. No.	Q6001			Q6002			Q7701			QR6001								
MODE	E	C		E	C		E	C	B	E	C	B						
STOP	4.6	0		5.0	0		2.6	0	1.9	0	12.9	0						
PLAY	4.8	0		5.0	0		2.6	0	1.9	0	12.8	0						
REC	4.6	0		5.0	0		2.6	0	1.9	0	12.8	0						
F.F	4.7	0		5.0	0		2.6	0	1.9	0	12.8	0						
REW	4.7	0		5.0	0		2.6	0	1.9	0	12.0	0						

Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓥ :TO LUMINANCE & CHROMINANCE/AUDIO SECTION
Ⓗ :TO HEAD AMP SECTION
Ⓣ :TO TIMER SECTION

CAPSTAN SERVO SPEED LOOP
CAPSTAN SERVO PHASE LOOP
CYLINDER SERVO SPEED LOOP
CYLINDER SERVO PHASE LOOP

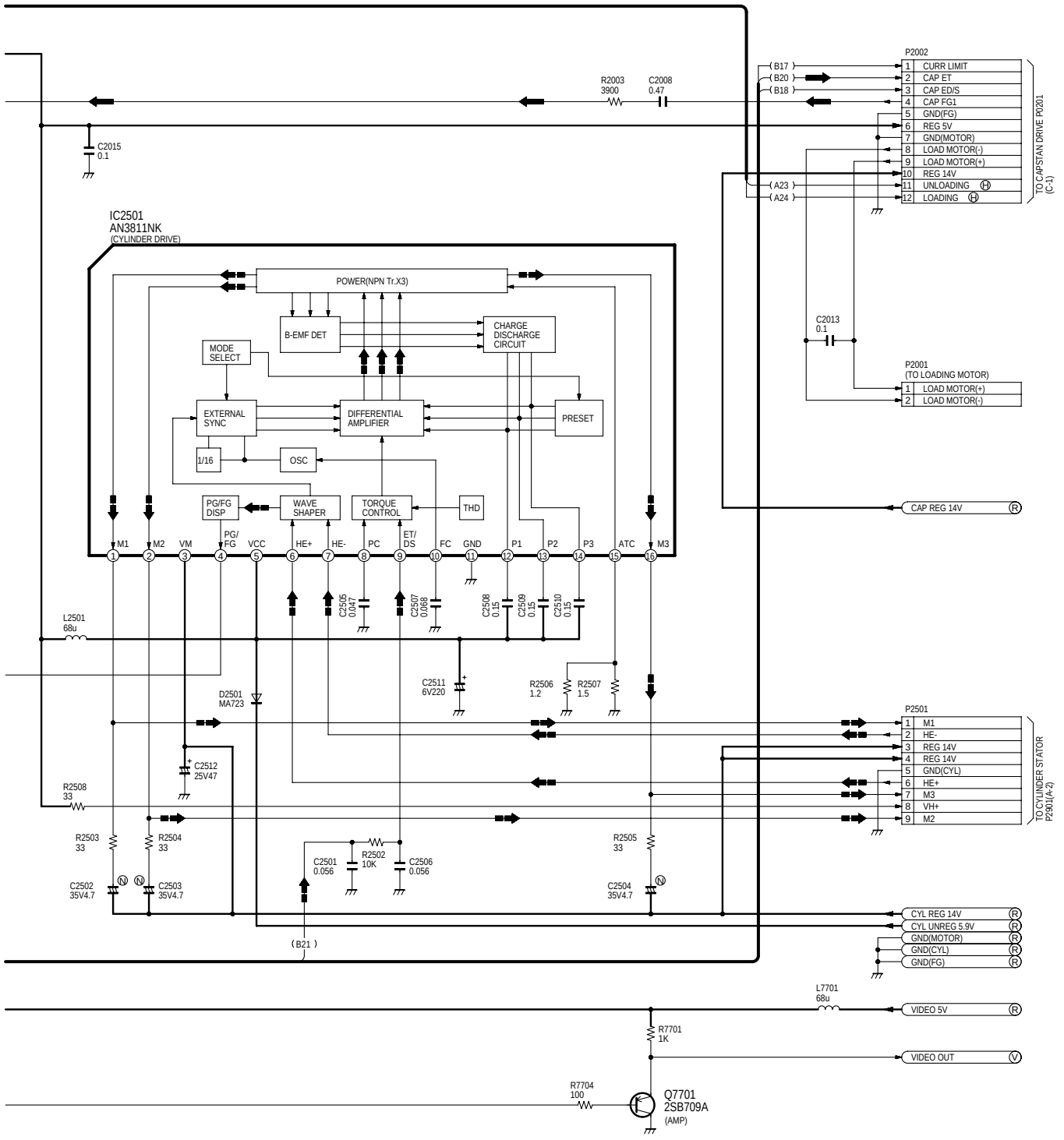
DS6001 VEK8192 (DEW SENSOR)
P6001: DEW SENSOR, GND
R6035 240K
MODE SW S2001 VSS0520
IC6004 PNA4611M08VT (IR RECEIVER) OUT GND VCC
IC6005 RN5VS42CA (RESET) GND VCC RST
C6015 0.01
QR6001 MUN2211 (POWER OFF Ⓗ :ON)
SAFETY TAB S6001 VES0834
R6022 1K
R2005 27K
C2009 50V3.3
R2007 100
TL6010
R6034 10K
R6031 39K
R6032 120
R6033 27K
R6019 10K:A 2700:EA
R6020 12K (EA)
R6018 18K
R6021 22K
Q6001 PNB2301MBV (T-PHOTO)
D6007 SIR505S SENSOR
Q6002 PNB2301MAV (S-PHOTO)
D2003 1SS254
TW2002
C2010 3900P
R6027 27K
R6026 27K
IC6002 RPI354N (S-REEL)
TL6013
IC6003 RPI354N (T-REEL)
TL6012
R6028 180
D6006 1SS254
IC6001 MN101D02GMC
R UNREG 5.9V
R REG 5V
R SYS UNREG 5V
R GND
V H SP Ⓛ A5
T FIP CS A8
R POWER OFF Ⓛ A10
H ENV.SELECT A11
H H.AMP SW A12
V ROTARY SW A13
R POWER SAVE Ⓗ A15
H TRACKING ENV. A16
R AFC S-CURVE A17
V CTL HEAD(-) A18
V CTL HEAD(+) A19
V H PAL 9H Ⓗ A20
V AUDIO MUTE Ⓗ A21
R PAL BG Ⓗ A23
T S.CLOCK
T S.DATA
R V IIC DATA
R V IIC CLOCK
V FM MUTE
H HEAD SW B1
V ART V/H/N B2
V A.HEAD SW B3
V D.A.REC Ⓗ B4
H D.REC Ⓗ B5
H CURR EMPH Ⓗ B6
V BIAS Ⓛ B8
V PICTURE 1 B9
H TRICK Ⓛ B11
V SYS VIDEO IN B13
V C SYNC B14
V FSC B15
R6001 3300
R6002 3300
R6003 3300
R6004 3300
R6010 3300
C6001 220P
C6011 220P
C6002 100P
C6003 100P
R6016 220
R6015 220
R6014 220
R6013 220
R6012 39K
R6011 1K
D6005 RB441PT-77
TW1004
D6004 RB441PT-77
LB6001 0
C6020 0.1
C6013 6V470
D6003 MA700A
C6008 0.1
R6029 1K
B6001 CR2354-1GUF
TW2001
TL7510
TL7509
TL6001
C6010 0.1
R6009 18K
D6008 1SS254
D7702 1SS254
D6001 1SS254
R2001 2200
R2501 10K
R6007 0
C2014 0.056
C6007 10P
X6002 VSX0365
C6006 18P
X6001 VSX0660
C6005 18P
R6008 330K
C6004 15P
R6025 22K
D6002 1SS254
R6017 220
C2012 680P
R2006 6800
C2007 6V100
C2006 0.1
R2004 4700
C2003 6V22
C2002 50V4.7
TL6090
C2005 33P
R2002 1M
D2001 1SS254
D2002 1SS254
TL2015
R6005 0
R6024 0
R6023 0
R7709 100
C7708 1000P
C7707 2200P
C7706 0.01
R7708 2200
C7705 1
C7701 6V100
C7702 0.1

(A10) (A11 A12 A13) (A15 A16) (A4 A2 A3) (A17) (A1 A23 A24)

IC6001 pins: 1 P FAIL IN Ⓛ; 2 SP Ⓛ; 3 S REEL PULSE; 4 T REEL PULSE; 5 IR IN; 6 OSD REC 1; 7 OSD REC 2; 8 FM MUTE; 9 V.EE Ⓗ; 10 FL DRV CS; 11 SQ PB Ⓗ; 12 VCR Ⓗ /TV Ⓛ; 13 CH H/L; 14 IC CLOCK; 15 IC LSN; 16 IC TALK; 17 IIC TALK/LSN; 18 IIC CLOCK; 19 PAL 9H SEL; 20 HALF WAVE Ⓗ; 21 CURR LIMIT; 22 CAP ED/S; 23 V.HEAD SW; 24 ART V/H/N; 25 RESET Ⓛ; 26 D.A.REC Ⓗ; 27 D.REC Ⓗ; 28 CURR EMPH Ⓗ; 29 12Hz; 30 FULL ERASE Ⓛ; 31 BIAS Ⓛ; 32 A.HEAD SW; 33 CAP ET; 34 CYL ET; 35 +5V(D); 36 14.318MHz OUT; 37 14.318MHz IN; 38 GND(OSC); 39 32Hz IN; 40 32Hz OUT; 41 CLK SEL; 42 MESECAM; 43 PIC 1; 44 V.SYNC; 45 TRICK Ⓛ; 46 CV OUT; 47 GND; 48 CV IN; 49 CV IN2; 50 +5V(OSD); 51 AFC C; 52 AFC LPF; 53 FSC; 54 FSC LPF; 55 SECAM MUTE; 56 SECAM Ⓛ; 57 CHARA+HEM; 58 I/DK/BG; 59 CHARA; 60 AV PB Ⓗ; 61 AUDIO MUTE Ⓗ; 62 PAL 9H Ⓗ; 63 GND; 64 CYL PG/FG; 65 GND; 66 CAP FG OUT; 67 CAP FG; 68 OREF; 69 IREF; 70 CTL AMP GND; 71 CTL AMP REF; 72 +5V(A); 73 CTL HEAD(+); 74 CTL HEAD(-); 75 PB CTL OUT; 76 EX.FF/REW Ⓛ; 77 AO; 78 AI; 79 LOAD Ⓗ; 80 UNLOAD Ⓗ; 81 DEW SENSOR; 82 T-PHOTO; 83 NOR/SER/T2/TEST; 84 S-PHOTO; 85 TRACK ENV; 86 T.S-CURVE; 87 POSI SW3; 88 POSI SW2; 89 POSI SW1; 90 S.TAB Ⓛ; 91 D.TV REC Ⓗ; 92 P.SAVE Ⓗ; 93 POWER OFF Ⓗ; 94 SLOW MADE Ⓗ; 95 ROTARY SW; 96 H.A.SW; 97 ENV.SELECT

(A5) (A8) (A18) (A19) (A20) (A21) (A23)
(B17 B18) (B1 B2) (B3 B4 B5 B6) (B8) (B20 B21) (B9) (B11) (B13) (B14) (B15)

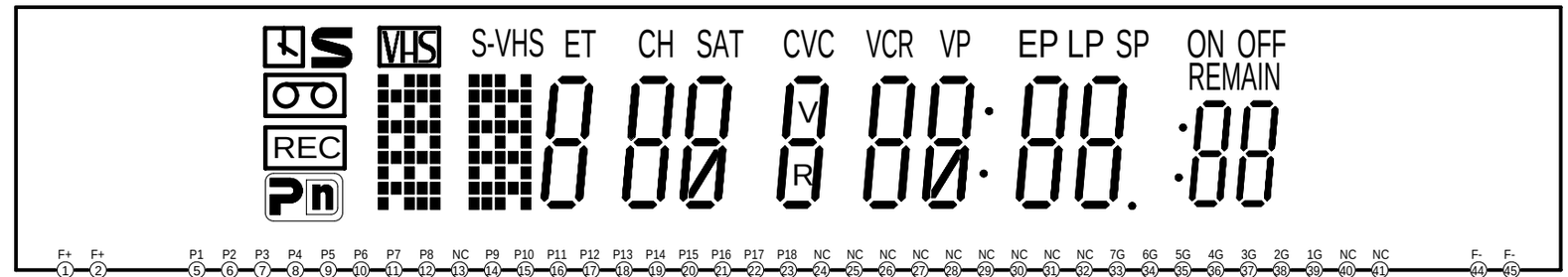
1 2 3 4 5 6 7 8 9 10 11
G F E D C B A



NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

Ⓟ :TO POWER TRANSFORMER SECTION
Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION

DP7501
VSL0543



F+ F+ P1 P2 P3 P4 P5 P6 P7 P8 NC P9 P10 P11 P12 P13 P14 P15 P16 P17 P18 NC NC NC NC NC NC NC NC NC NC 7G 6G 5G 4G 3G 2G 1G NC NC F- F-
1 2 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 44 45

Ⓡ PS HEATER(+) — R7512 15

Ⓟ HEATER(-) — D7502 MA4220NH — C7505 50V10 — R7510 270

Ⓟ UNREG -29V — R7504 100

S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 VEE
36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19
-28.4 -23.5 -27.1 -29.4 -24.3 -19.4 -24.3 -19.4 -24.3 -24.3 -19.1 -24.3 -24.3 -24.3 -29.2 -24.4 -29.4 -28.4

IC7501
M35502AFP

S DATA S CLOCK CS Ⓛ A3 A2 A5 A4 VSS OSC VCC G1 G2 G3 G4 G5 G6 G7 S18
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
4.4 4.6 3.4 5.0 5.0 0 3.5 2.3 5.0 -24.8 -24.8 -24.8 -24.8 -24.8 -24.8 -24.8 -29.4

Ⓢ S.DATA — R7507 220
Ⓢ S.CLOCK — R7508 220
Ⓢ FIP CS
C7503 12P

R7505 12K — R7506 12K — R7509 10K
C7502 0.1 — C7504 6V100

Ⓡ UNREG 5.9V — D7501 1SS254
Ⓡ GND

POWER S7501 EVQPC105K
D.TV REC S7514 EVQ11L07B — R7501 82K

REC S7506 EVQ11L07B — R7515 3900 — R7517 3300
CH UP S7508 EVQ11404M — R7519 5600
SEARCH S7509 EVQ11404M — R7520 15K
FF S7512 EVQ11L07B — R7522 56K
PLAY S7513 EVQ11L07B

CH DOWN S7505 EVQ11L07B — R7514 3900 — R7516 3300
T.REC S7507 EVQ11L07B — R7518 5600
STOP S7510 EVQ11L07B — R7521 15K
REW S7511 EVQ11L07B
EJECT S7502 EVQ11L07B

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE:DO NOT USE PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLESE REFER TO PARTS LIST.

F E D C B A
1 2 3 4 5 6 7 8 9

Ⓡ :TO POWER SUPPLY/RF SECTION
Ⓢ :TO SYSTEM CONTROL & SERVO SECTION
Ⓗ :TO HEAD AMP SECTION

VIDEO MAIN SIGNAL PATH IN REC MODE
VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE
AUDIO MAIN SIGNAL PATH IN REC MODE
AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

P4001
(TO A/C HEAD)
AUDIO ERASE IN 1
GND 2
A.HEAD (W) 3
A.HEAD (R) 4
CTL HEAD (-) 5
CTL HEAD (+) 6

Ⓢ CTL HEAD (+)
Ⓢ CTL HEAD (-)
Ⓢ BIAS Ⓛ

P4002
(TO FULL ERASE HEAD)
FULL ERASE IN 1
FULL ERASE OUT 2

JK3001
VJJ0680
(FRONT JACK)
AV2 1
AUDIO (L)IN 2
VIDEO IN 3
AUDIO (R)IN 5

JK3002
VJJ0675
(REAR JACK)
AV1 1
AUDIO (R)IN 2
AUDIO (L)IN 3
VIDEO IN 4
AUDIO (R)OUT 6
AUDIO (L)OUT 7
VIDEO OUT 8

Ⓡ RFC VIDEO OUT
Ⓢ VIDEO OUT
Ⓡ CURR.LIMIT

Ⓡ SW 5V
Ⓡ REG 12V
Ⓡ REG 5V
Ⓡ SW 12V
Ⓡ VIDEO 5V
Ⓡ GND

R4041 10K
C4040 1000P
T4002 VLT0895
C4041 0.022
R4040 3300
0.3 (-0.6)
0.4 (4.7)
Q4005 2SD602A (OSC)
C4037 1500P
L4004 120u
C4039 6V220
C4038 0.022
R4042 2200
5.4 (4.1)
R4043 3300
0.4 (4.9)
Q4006 2SB643 (AUDIO ERASE DRIVE)
5.0

LB4002 0
R4002 0
LB4001 0
R4001 0
R3001 75
LB4003 0
R4020 470
LB4004 0
R4021 470
R3009 75
R4018 0
R4019 0
R3017 75

C3019 16V47
R3007 470
C3020 6V470
Q3001 2SB709A (AMP)
3.3
2.6
R3008 470
R3010 8200

Q4501 2SB709A (CURRENT LIMITER)
0
5.1
5.2
R4519 2.2

L4501 10u
C4520 0.1
C4521 16V47
12.2
0.6 (4.3)
TW4501
C4517 0.1
C4523 0.01
C4522 560P
R4521 220
0 (4.3)
L4502 0
C4516 0.1
C4524 6V330
5.1
0.9 (0.1)
AUDIO HEAD AMP
AUDIO HEAD SW
R4518 0
3.1
R4517 0
3.2
TW4502
0.9 (0.1)
ENV. OUT
R4520 10K
C4525 470P
IIC BUS INTERFACE
MUTE/ SELECT SW/ VOLUME CONTROL
BPF
LPF
FM MODULA-TOR/ DEMODU-LATOR

C4529 5600P
R4523 3300
C4530 16V10
R4524 39K
C4528 16V47
C4527 16V10
C4526 50V2.2
R4522 39K
C4512 16V47
C4511 16V47
R4514 3300
C4531 5600P
R4513 39K
C4510 16V10
3.9 3.9 3.9 1.0 3.9 3.8 1.0 3.9 3.9 3.9
VREF IREF GND
LPF-PNR(R CH)
LPF-PNR(L CH)

TU(L) TU(R) E2(L) E2(R) SAP
NORMAL SELECT SWITCH
MIX AMP
DECODER SELECT SWITCH
TU(L) TU(R) E1(L) E1(R)
OUTPUT SELECT SWITCH
LINE SELECT SWITCH
E2 (L),(R)
MUTE

C4509 50V0.22
C4508 16V10
C4507 16V10
R4511 0
C4506 16V10
R4510 0
C4502 16V10
R4507 220
C4501 16V10
R4505 3.3M
R4509 47K
R4508 47K
R4506 47K

INPUT SELECT SWITCH
SAP TU (L) TU (R) E1 (L) E1 (R) E2 (L) E2 (R)
3.8 3.4 3.4 3.2 3.2 3.3 3.3 3.3 3.3 3.6 3.6

IC4501
TDA9605H

C4515 50V 0.47
C4514 50V 0.47
C4513 50V 0.22
C4505 50V 0.22
C4504 50V 0.22
C4503 50V 0.22
R4528 75K
R4525 75K
R4515 100K
R4516 100K
R4502 100K
R4501 100K

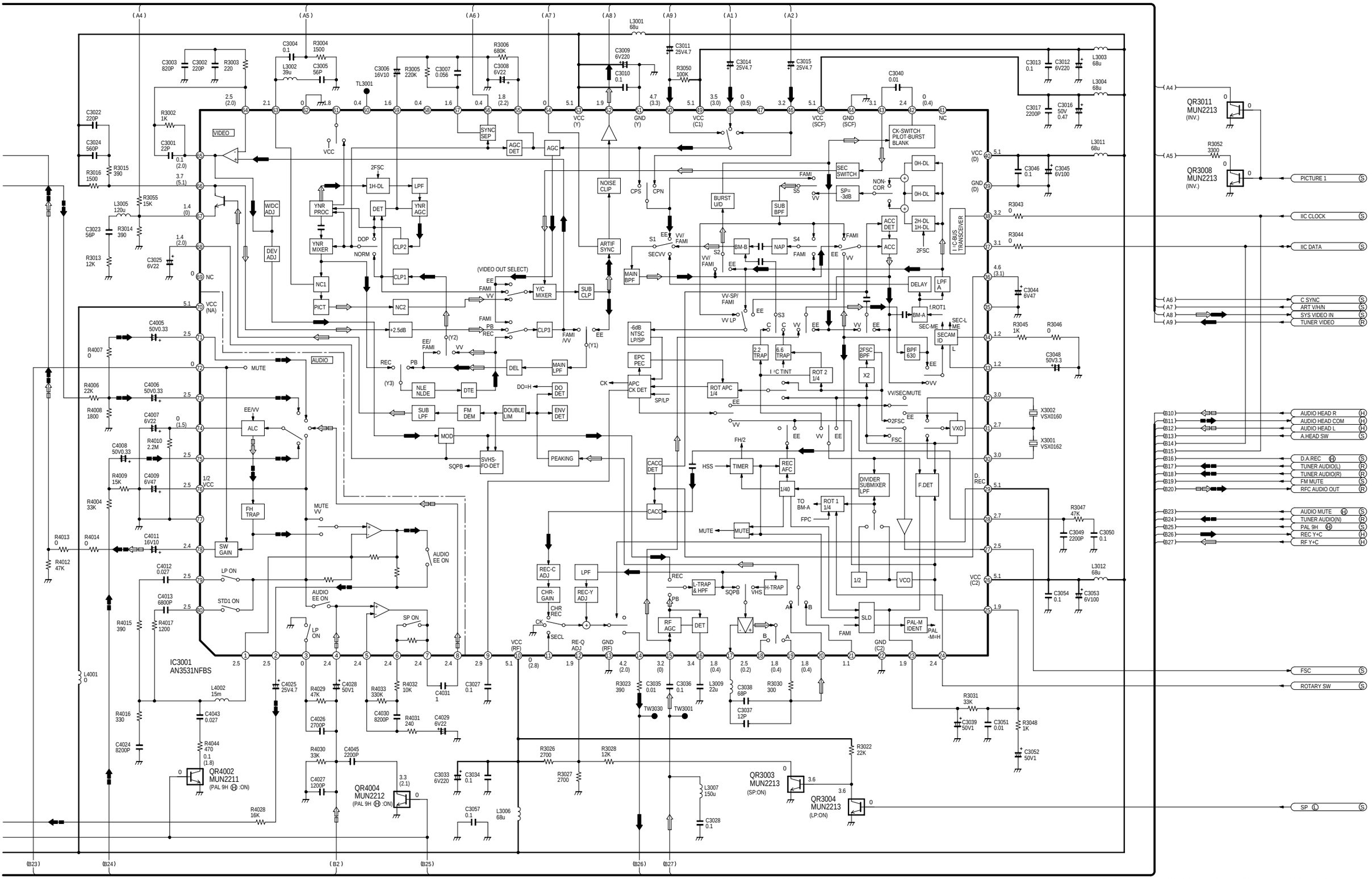
QR4503 UN2215 (MUTE)
QR4502 UN2215 (MUTE)
QR4501 UN2215 (MUTE)

Q4003 2SD1149 (PB:ON)
Q4004 2SD601A (PB:ON)
R4037 4700
R4038 2200
0 (5.0)
0 (-15.4)
0.7 (-24.8)
5.1 (-24.6)
QR4001 MUN2111 (D.A.REC Ⓗ :OFF)
0 (4.7)
5.0
R4039 10K

C4046 100P
QR4005 UN2215 (PAL 9H Ⓗ :ON)
QR4006 UN2215 (PAL 9H Ⓗ :ON)
11.7 (14.0)
4.5
QR4505 MUN2113 (BUFFER)

(B1) (B2) (B3) (B4) (B5) (B6) (B7) (B8) (B10) (B11) (B12) (B13) (B14) (B15) (B16) (B17) (B18) (B19) (B20)

H G F E D C B A
1 2 3 4 5 6 7 8 9 10 11 12



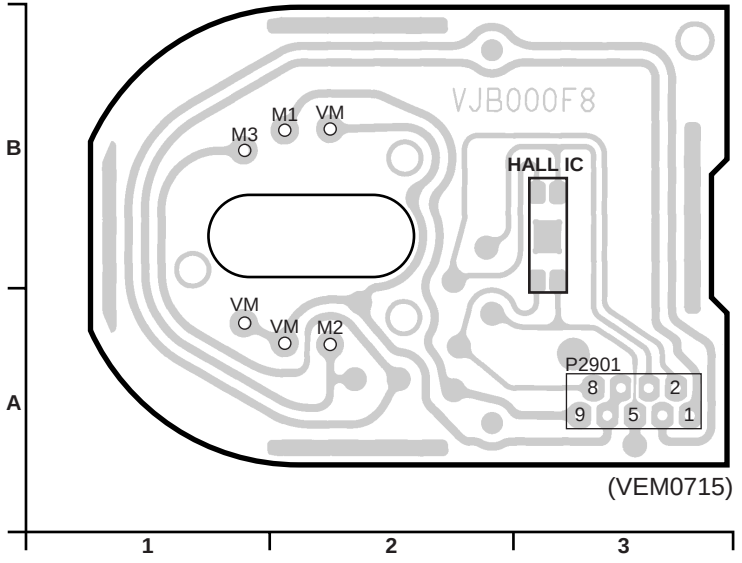
NOTE:THE MEASUREMENT MODE OF THE DC VLOLTAGE IN THE BRACKETS( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR.(SP MODE)

THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

CYLINDER STATOR UNIT	
Integrated Circuit	
HALL IC	B-3
Connector	
P2901	A-3

ADDRESS INFORMATION

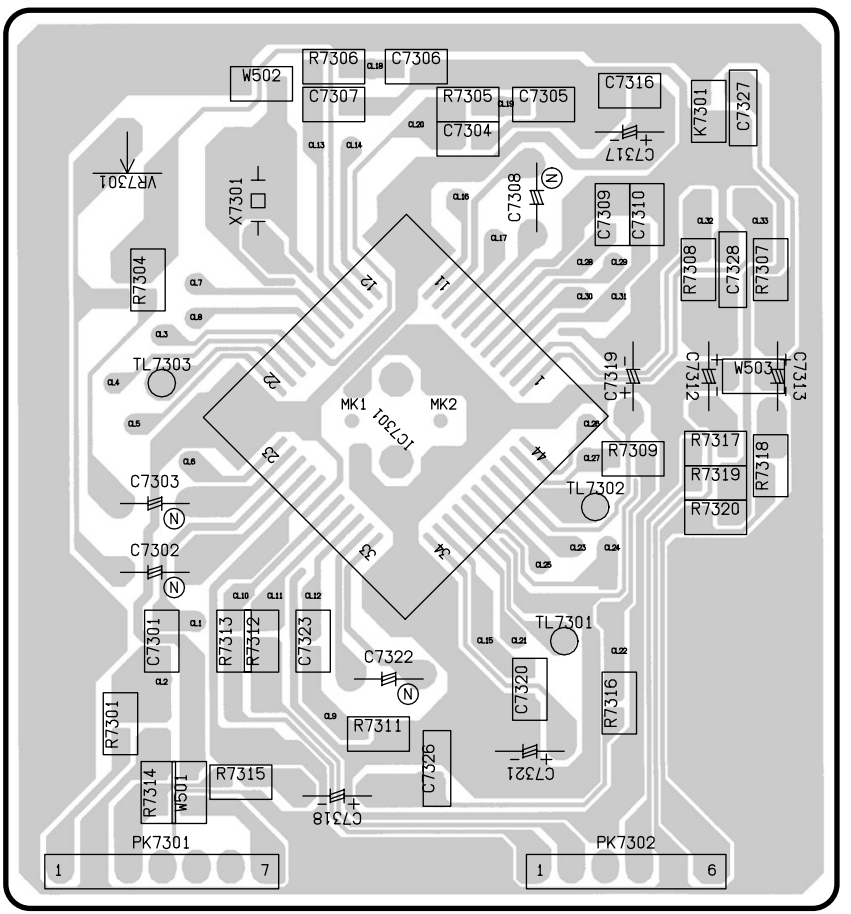


(VEM0715)

DECODER PACK C.B.A.	
Integrated Circuit	
IC7301	B-2
Test Point	
TL7301	A-2
TL7302	B-2
TL7303	B-1
Adjustment	
VR7301	C-1
Connector	
PK7301	A-1
PK7302	A-2

ADDRESS INFORMATION

(VEP07A16B)



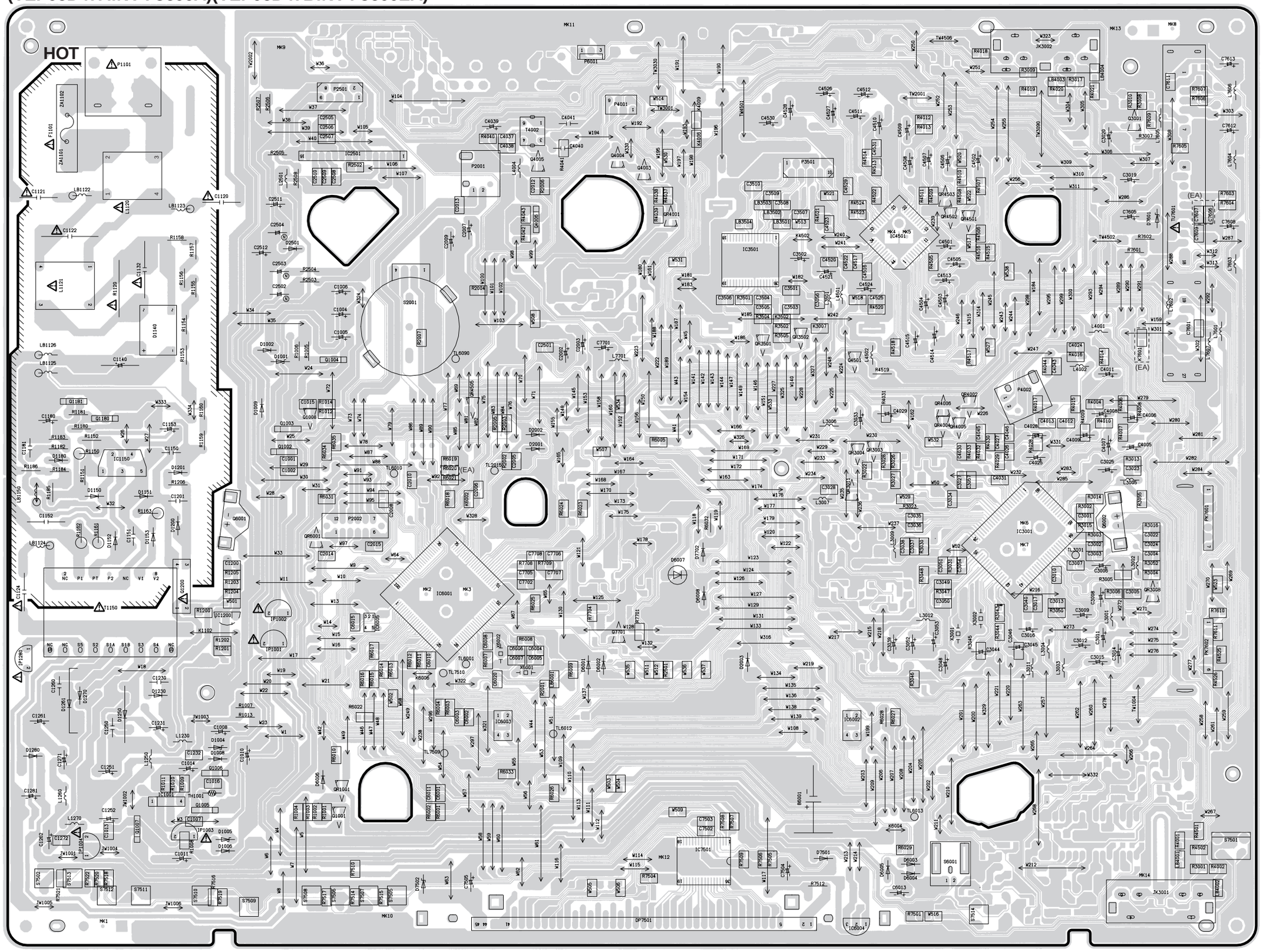
C

B

A

1 2 3

(VEP06D47A:NV-FJ600A)(VEP06D47B:NV-FJ600EA)



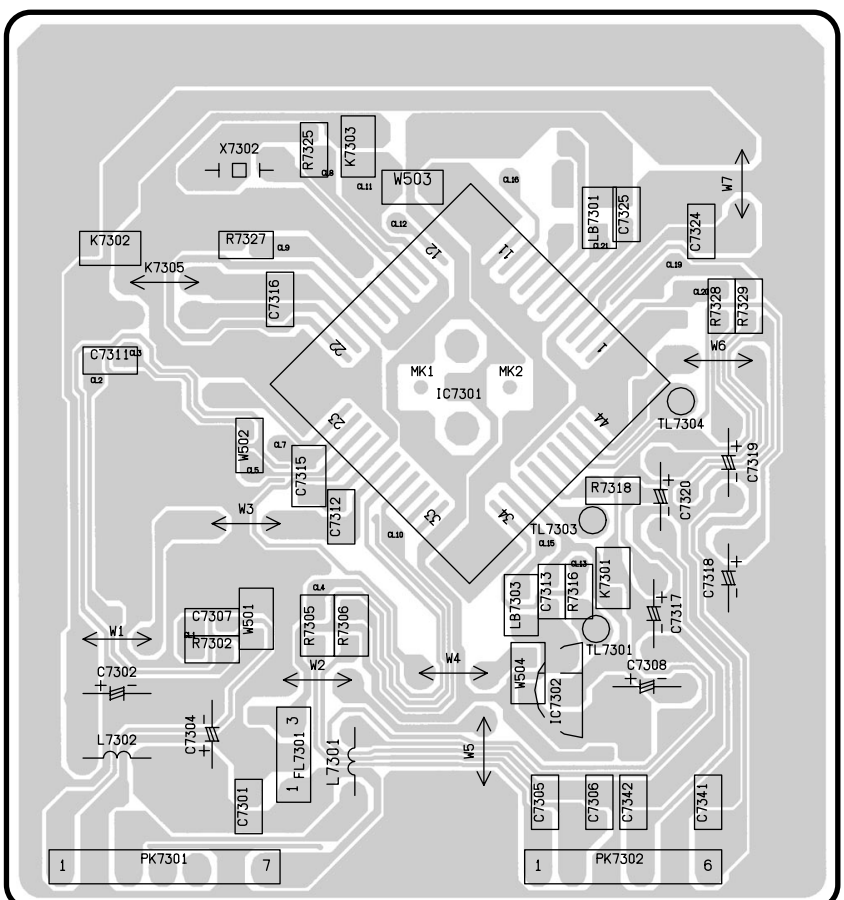
MAIN C.B.A.			
Transistor		IC1200	C-2
Q1001	A-3	IC2501	E-3
Q1002	D-2	IC3001	C-7
Q1003	D-2	IC3501	E-5
Q1004	D-3	IC4501	E-6
Q1005	A-2	IC6001	C-3
Q1006	B-2	IC6002	B-6
Q1007	A-1	IC6003	B-4
Q1008	D-2	IC6004	A-6
Q1180	D-1	IC6005	C-3
Q1181	D-1	IC7501	A-5
Q1200	C-2	**Test Point**	
Q3001	F-8	TL2015	D-4
Q4003	E-5	TL3001	C-7
Q4004	E-4	TL6001	B-3
Q4005	E-4	TL6010	D-3
Q4006	E-4	TL6012	B-4
Q4501	D-6	TL6013	A-6
Q6001	C-2	TL6090	D-3
Q6002	C-7	TL7509	B-3
Q7701	C-4	TL7510	B-3
Transistor & Resistor		TW1004	B-8
QR1001	B-3	TW2001	F-6
QR3003	D-6	TW2002	F-2
QR3004	D-6	TW3001	F-5
QR3008	C-8	TW3030	F-5
QR3011	C-6	TW3090	F-7
QR3501	D-5	TW4501	F-5
QR3502	D-5	TW4502	E-7
QR4001	E-5	TW4506	F-6
QR4002	D-7	**Connector**	
QR4004	D-6	P1101	F-1
QR4005	D-6	P2001	E-4
QR4006	D-6	P2002	C-3
QR4501	E-7	P2501	F-3
QR4502	E-6	P3501	E-6
QR4503	E-6	P4001	F-4
QR4505	D-3	P4002	D-7
QR6001	C-3	P6001	F-4
Integrated Circuit		PK7301	C-8
IC1001	B-2	PK7302	B-8
IC1150	D-1	TU7601	E-8

ADDRESS INFORMATION

NICAM DECODER PACK C.B.A.	
Integrated Circuit	
IC7301	B-2
IC7302	A-2
Test Point	
TL7301	A-2
TL7303	B-2
TL7304	B-2
Integrated Circuit	
PK7301	A-1
PK7302	A-2

ADDRESS INFORMATION

(VEP07A18E)

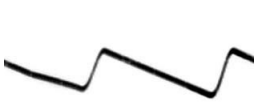


C

B

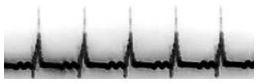
A

1 2 3



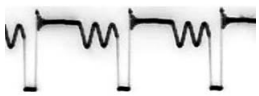
T1150-3 STOP
4.0Vp-p (2msec. div.)

T1150-7 STOP
100Vp-p (5μsec. div.)

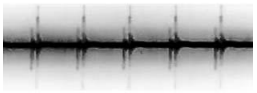


IC1150-1 STOP
2.0Vp-p (10μsec. div.)

IC1150-2 STOP
15Vp-p (10μsec. div.)



IC1150-3 STOP
450Vp-p (5μsec. div.)

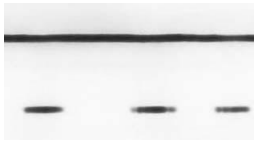


IC1150-4 STOP
2.0Vp-p (10μsec. div.)

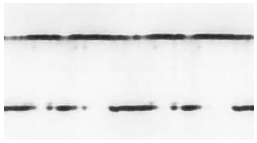
IC2501-1,2,16 REC
9.0Vp-p (2msec. div.)

IC6001-3,4 FF/REW
5.0Vp-p (1msec. div.)

IC6001-14 REC
4.8Vp-p (10msec. div.)

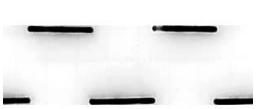


IC6001-15,16 REC
4.8Vp-p (10msec. div.)

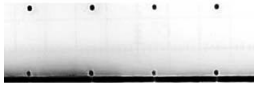


IC6001-17 REC
4.8Vp-p (10msec. div.)

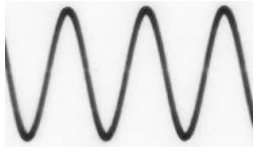
IC6001-18 REC
4.8Vp-p (10msec. div.)



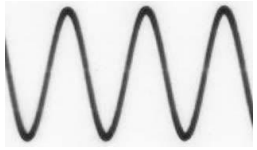
IC6001-23 REC
5.0Vp-p (10msec. div.)



IC6001-24 PAUSE
4.8Vp-p (10msec. div.)

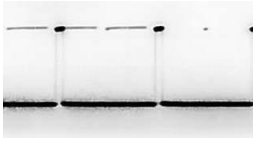


IC6001-38 REC
3.2Vp-p (50nsec. div.)



IC6001-40 REC
1.0Vp-p (20μsec. div.)

IC6001-47,49
REC/PLAY
2.0Vp-p (20μsec. div.)

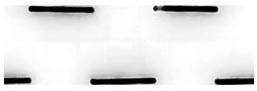


IC6001-50 REC/PLAY
5.0Vp-p (20μsec. div.)

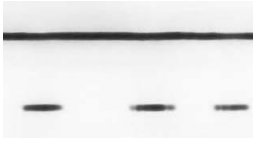
IC6001-65 REC
5.0Vp-p (10msec. div.)

IC6001-67 REC
0.8Vp-p (1msec. div.)

IC6001-74,75 REC
6.0Vp-p (10msec. div.)

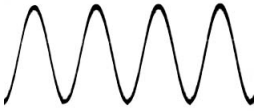


IC6001-98 REC
5.0Vp-p (10msec. div.)



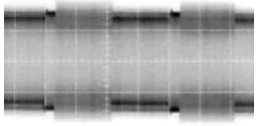
IC7501-1 STOP
4.8Vp-p (10msec. div.)

IC7501-2 STOP
4.8Vp-p (10msec. div.)

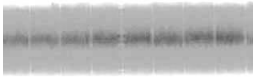


IC3001-2 REC
1.5Vp-p (5msec. div.)

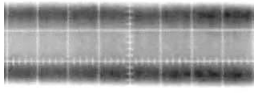
IC3001-4 PLAY
5.0Vp-p (5msec. div.)



IC3001-14 REC
0.4Vp-p (5msec. div.)

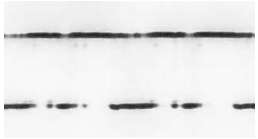


IC3001-15 PLAY
0.6Vp-p (20μsec. div.)

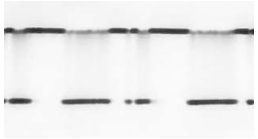


IC3001-20 PLAY
150mVp-p (20μsec. div.)

IC3001-24 REC/PLAY
5.0Vp-p (10msec. div.)



IC3001-37 REC/PLAY
4.8Vp-p (10msec. div.)

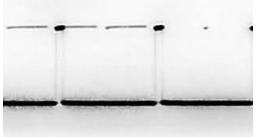


IC3001-38 REC/PLAY
4.8Vp-p (10msec. div.)

IC3001-42,43 PLAY
0.4Vp-p (20μsec. div.)

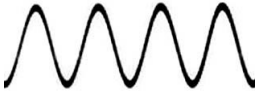
IC3001-48 REC
1.0Vp-p (20μsec. div.)

IC3001-52 REC/PLAY
2.0Vp-p (20μsec. div.)

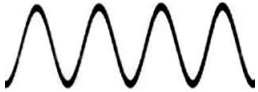


IC3001-56 REC/PLAY
5.0Vp-p (20μsec. div.)

IC4501-6,7 REC
1.2Vp-p (5msec. div.)

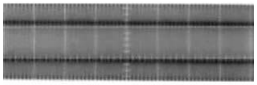


IC4501-16,17
REC/PLAY
1.2Vp-p (5msec. div.)

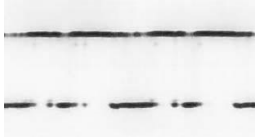


IC4501-21 REC
1.2Vp-p (5msec. div.)

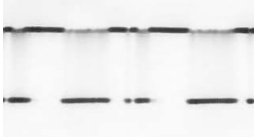
IC4501-22
REC/PLAY
1.2Vp-p (5msec. div.)



IC4501-36 REC
3.5Vp-p (20μsec. div.)



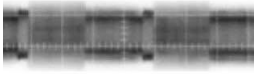
IC4501-42 REC/PLAY
4.8Vp-p (10msec. div.)



IC4501-43 REC/PLAY
4.8Vp-p (10msec. div.)

Q4005-C REC
9.0Vp-p (5μsec. div.)

IC3501-1 REC/PLAY
5.0Vp-p (10msec. div.)



IC3501-30 PLAY
0.4Vp-p (5msec. div.)

IC3501-31 REC
0.3Vp-p (5msec. div.)

443NT [L]	4.43 NTSC Ⓛ
A. COMP	AUDIO COMPONENT SIGNAL
A. COMPO	AUDIO COMPONENT SIGNAL
A. D.P [L]	AUDIO DUBBING PAUSE Ⓛ
A. D/L [L]	AUDIO DUBBING PAUSE Ⓛ
A. DEF [S]	AUDIO DEFEAT
A. DEF [S] [L]	AUDIO DEFEAT
A. DUB P [L]	AUDIO DUBBING PAUSE Ⓛ
A. DUB [H]	AUDIO DUBBING Ⓗ
A. ERASE	AUDIO ERASE
A. H. SW	AUDIO HEAD SWITCHING PULSE
A. HEAD [R]	AUDIO HEAD (REC)
A. HEAD [W]	AUDIO HEAD (PLAY)
A. IN [L]	AUDIO INPUT (L)
A. IN [R]	AUDIO INPUT (R)
A. MUT [H]	AUDIO MUTE Ⓗ
A. MUTE [H]	AUDIO MUTE Ⓗ
A. OUT [L]	AUDIO OUTPUT (L)
A. OUT [R]	AUDIO OUTPUT (R)
A. RF OUT	AUDIO RF SIGNAL OUTPUT
A/VS/S. DATA	AV SW/SERIAL DATA
AC ONLINE	AC ONLINE
AC. O/EE. H	AC ONLINE/EE Ⓗ
AFC S C	AFC S CURVE
AFC [S]	AFC S CURVE
AFC. DEF	AFC DEFEAT
ARFC OUT	AUDIO RF SIGNAL OUTPUT
ART. V	ARTIFICIAL VERTICAL SYNC SIGNAL
ART. V. MM	ARTIFICIAL VERTICAL SYNC SIGNAL MONO MULTI
ART. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL Ⓗ/NORMAL
AT. V/H/N	ARTIFICIAL VERTICAL SYNC SIGNAL
ATSW/TEST/NOR/SE	TEST/NORMAL/SERVICE
AUDIO IN [L]	AUDIO INPUT (L)
AUDIO IN [R]	AUDIO INPUT (R)
AUDIO OUT [L]	AUDIO OUTPUT (L)
AUDIO OUT [R]	AUDIO OUTPUT (R)
AUDIO SELECT [H]	AUDIO SELECT Ⓗ
AUDIO. L	AUDIO (L)
AUDIO. R	AUDIO (R)
AV CNT	AV CONTROL
AV CTL	AV CONTROL
AV CTL/S. CLK	AV CONTROL/SERIAL CLOCK
AV. C.M.	AV CONTROL MODE
AVCNT/METER. R	AV CONTROL/LEVEL METER (R)
AVSW/METER. L	AV SW/LEVEL METER (L)
B MODE. H	B MODE Ⓗ
B.G.P	BURST GATE PULSE
BACKUP 5V	BACK UP 5V
BAND. U.E.	BAND U
BANDVL. D	BAND VL
BI/MI [L]	BILINGUAL/MIX Ⓛ
BIL	BILINGUAL
BIL [L]	BILINGUAL Ⓛ
BIL. [H]	BILINGUAL Ⓗ
BIL/M1 [L]	BILINGUAL Ⓛ
BS CLOCK	BS CLOCK
BS DATA	BS DATA
BS LCH IN	BS L CHANNEL INPUT
BS MIX [H]	BS MIX Ⓗ
BS MON [H]	BS MONITOR Ⓗ
BS MONI [H]	BS MONITOR Ⓗ
BS RCH IN	BS R CHANNEL INPUT
BS VIDEO	BS VIDEO SIGNAL
BS VIDEO/BS1	BS VIDEO SIGNAL
BS [H]	BS Ⓗ
BS. LEVEL	BS LEVEL
BS. M [H]	BS MONITOR Ⓗ
BS/VTR [H]	BS/VTR Ⓗ
BUS CLK	BUS CLOCK
BUS LSN	BUS LISTEN
BUS TLK	BUS TALK
BUZZER	BUZZER
CAP EC	CAPSTAN TORQUE CONTROL
CAP M GND	CAPSTAN MOTOR GND
CAP. ET	CAPSTAN TORQUE CONTROL
CAP. FG1	CAPSTAN FG1 PULSE
CAP. FG2	CAPSTAN FG2 PULSE
CAS. SW	CASSETTE SW
CCN	PLAYBACK CONTROL SIGNAL (–)
CCP	PLAYBACK CONTROL SIGNAL (+)
CHM	CONTROL SIGNAL (+)
CHP	CONTROL SIGNAL (–)
CINEM [L]	CINEMA Ⓛ
CINEMA [L]	CINEMA Ⓛ
CINEMA/MIX	CINEMA/MIX
CKL	RATCH LOCK
CKS	SHIFT LOCK
CL	CLOCK
CLK	CLOCK
CLK (C.G)	CLOCK
CLOCK. IN	CLOCK INPUT
CLP	CLAMP
COL/B/W/NOR	COLOUR/BLACK & WHITE/NORMAL
COLOR [H]	COLOUR Ⓗ
CONV	CONVERTOR
CS	CHIP SELECT
CTL GND	CONTROL GND
CTL HEAD [+]	CONTROL HEAD (+)
CTL HEAD [–]	CONTROL HEAD (–)
CTL [+]	CONTROL HEAD (+)
CTL [–]	CONTROL HEAD (–)
CUE BIAS	CUE BIAS
CURRENT LIM	CURRENT LIMMITER
CYL ET	CYLINDER TORQUE CONTROL

CYL GND	CYLINDER GND
D.F.M. REC [H]	DELAIED FM RECORDING Ⓗ
D. FM REC [L]	DELAIED FM RECORDING Ⓛ
D. GND	DIGITAL GND
D. REC [H]	DELAYED RECORDING Ⓗ
D4/S. LED	D4/STILL LED
D4/STILLED	D4/STILL LED
DAC [CLK]	TUNER DAC (CLOCK)
DAC/FSCS	TUNER DAC/FS CHIP SELECT
DAREC [H]	DELAYED AUDIO RECORDING Ⓗ
DATA	DATA
DECODER [L]	DECODER (L)
DECODER [R]	DECODER (R)
DEW	DEW
DEW SNS	DEW SENSOR
DFMRE [H]	DELAYED FM AUDIO RECORDING Ⓗ
E. REC 5V	EXCEPT RECORDING 5V
EC	ERROR TORQUE CONTROL
ECR	ERROR TORQUE CONTROL REFERENCE VOLTAGE
EDT TRIG [L]	EDIT TRIGGER Ⓛ
EDIT [H]	EDIT Ⓗ
EE [H]	EE Ⓗ
EE [H]/INS [M]	EE Ⓗ/INSERT Ⓜ
EE. VV. TR	EE/VV/TRICK PLAY
EJECT. PO	EJECT POSITION
EJECT/VDET	EJECT/REVERSE SLOW LOCK
ENV. SEL	ENVELOPE SELECT
ENVE. OUT	ENVELOPE OUTPUT
ENVE. SEL	ENVELOPE SELECT
ENV SELECT	ENVELOPE SELECT
EP [H]	LP Ⓗ
EP/LP [H]	LP Ⓗ
EP/LP/SP	LP/SP
EP/SS [H]	LP/SLOW/STILL/STOP Ⓗ
EPROMCS	EPROM CHIP SELECT
EX. REC 5V	EXCEPT RECORDING 5V
FF/REW [L]	FIRST FORWARD/REWIND Ⓛ
FG1 IN	FG1 PULSE INPUT
FG2 IN	FG2 PULSE INPUT
FILTER ADJUSTMENT	FILTER ADJUSTMENT
FLY ERASE [H]	FLYING ERASE HEAD ON Ⓗ
FLY ON [H]	FLYING ERASE HEAD ON Ⓗ
FLY. E [H]	FLYING ERASE HEAD ON Ⓗ
FM MUT [H]	FM AUDIO MUTE Ⓗ
FM MUTE [H]	FM AUDIO MUTE Ⓗ
FM OUT [L]	FM OUTPUT (L)
FM OUT [R]	FM OUTPUT (R)
FM PACK OUT [L]	FM PACK OUTPUT (L)
FM PACK OUT [R]	FM PACK OUTPUT (R)
FM/BS SEL [L]	FM/BS SELECT (L)
FM/BS SEL [R]	FM/BS SELECT (R)
FS. CLK	FS CLOCK
FUL. E [H]	FULL ERASE HEAD ON Ⓗ
FULL. E [H]	FULL ERASE HEAD ON Ⓗ

FULL. E. 12V	FULL ERASE 12V
GND [A]	GND (ANALOG)
GND [TU]	GND (TUNER)
GND/N. SW. 12V	GND/NON SW 12V
H. SYNC	HORIZONTAL SYNC
H. AMP. SW	HEAD AMP SW PULSE
H. P <R>	HEAD PHONE (R)
H. P <L>	HEAD PHONE (L)
H. P GND	HEAD PHONE GND
H. P OUT [L]	HEAD PHONE OUTPUT (L)
H. P OUT [R]	HEAD PHONE OUTPUT (R)
H. SW	HEAD SW PULSE
HEAD PHONE [L]	HEAD PHONE (L)
HEAD PHONE [R]	HEAD PHONE (R)
HEAD SW	HEAD SW
HEATER [+]	HEATER (+)
HEATER [–]	HEATER (–)
HSS	HORIZONTAL SYNC SIGNAL
HTR [+]	HEATER (+)
HTR [–]	HEATER (–)
I RFE	REFERENCE CURRENT
ICL	CONTROL AGC CIRCUIT
IF	INTERMEDIATE FREQUENCY
IN SELA1	INPUT SELECT A1 POSITION
IN SELA2	INPUT SELECT A2 POSITION
IN SELA3	INPUT SELECT A3 POSITION
INS L/R [L]	INSERT Lch/Rch Ⓛ
INS. [H]	INSERT Ⓗ
INSEL A1	INPUT SELECT A1 POSITION
INSEL A2	INPUT SELECT A2 POSITION
INSERT	INSERT
INSERT [H]	INSERT Ⓗ
IO CS	INPUT/OUTPUT CHIP SELECT
JOG1	JOG1
JOG S3 LED/FOWRD	JOG LED/FORWARD LED
JOG/F. LED	JOG LED/FORWARD LED
JSB [H]	JSB Ⓗ
JST. CLCK	JUST CLOCK
JST. CLK	JUST CLOCK
JST. CLOCK	JUST CLOCK
L. OUT	Lch OUTPUT
L. CH [H]	Lch Ⓗ
L. CH [L]	Lch Ⓛ
LED (MAIN)	LED (MAIN)
LED (STEREO)	LED (STEREO)
LED (SUB)	LED (SUB)
LED CKL	LED SERIAL CLOCK
LED CKS	LED SERIAL CLOCK
LED DATA	LED SERIAL DATA
LINE IN 1 [L]	LINE INPUT 1 (L)
LINE IN 1 [R]	LINE INPUT 1 (R)
LINE IN 2 [L]	LINE INPUT 2 (L)
LINE IN 2 [R]	LINE INPUT 2 (R)
LINE IN V	LINE INPUT VIDEO
LINE IN [L]	LINE INPUT (L)

LINE IN [R]	LINE INPUT (R)
LINE OUT [L]	LINE OUTPUT (L)
LINE OUT [R]	LINE OUTPUT (R)
LP [H]	LP Ⓗ
LPTRI [L]	LP TRICK PLAY Ⓛ
Lch/A. DUB	Lch/AUDIO DUBBING
M GND	MOTOR GND
M REG	MOTOR REGULATOR
MAIN OUT	MAIN OUTPUT
MAIN [L]	MAIN Ⓛ
MAIN/MONO	MAIN/MONAURAL
MAX IN	MAXIMAM INPUT
MES [H]	MESECAM Ⓗ
MESE [H]	MESECAM Ⓗ
MESE [L]	MESECAM Ⓛ
METER 5V	LEVEL METER 5V
METER [L]	LEVEL METER (L)
METER [R]	LEVEL METER (R)
METER. L/AVS	LEVEL METER (L)
METER. R/AVC	LEVEL METER (R)
MI/BI [L]	MIX Ⓗ/BILIGUAL
MIC GND	MIC GND
MIC IN	MIC INPUT
MIC IN [L]	MIC INPUT (L)
MIC IN [R]	MIC INPUT (R)
MIC [H]	MIC Ⓗ
MIX [H]	MIX Ⓗ
MIX [H]/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINE	MIX Ⓗ/CINEMA SOUND Ⓛ
MIX/CINEMA [L]	MIX Ⓗ/CINEMA SOUND Ⓛ
MN. H/M. L	MONAURAL Ⓗ/MAIN Ⓛ
MN. H/MAI. L	MONAURAL Ⓗ/MAIN Ⓛ
MN2/MES. L	MONAURAL 2/MESECAM Ⓛ
MODE SEL	AUDIO MODE SELECT
MODE SW	AUDIO MODE SW
MODE. S. IN	AUDIO MODE SELECT INPUT
MODE. S. OUT	AUDIO MODE SELECT OUTPUT
MONO [H]	MONAURAL Ⓗ
MONO [H]/MAIN [L]	MONAURAL Ⓗ/MAIN Ⓛ
MONO2 [L]	MONAURAL 2
MONO2/MESE [FM(L)]	MONAURAL 2/MESECAM (FM Ⓛ)
MOTOR GND	MOTOR GND
MUTE	MUTE
N. A. REC [L]	NORMAL AUDIO RECORDING
N. SW 12V	NON SW 12V
N. SW. 5. DET	NON SW 5V DETECT
NICAM	NICAM
NICAM [L]	NICAM Ⓛ
NOL [H]	PAL Ⓗ/4.43 NTSC Ⓜ/3.58 NTSC Ⓛ
NOR/SOFT [H]	NORMAL/SOFT TAPE PLAY Ⓗ
NORMAL [H]	NORMAL Ⓗ
NR BIAS	NR BIAS
NTSC [L]	NTSC Ⓛ
OCH	CONTROL AGC CIRCUIT
OUT	OUTPUT

P-OFF [H]	POWER OFF Ⓗ
P-OFF [L]	POWER OFF Ⓛ
P. FAIL	POWER FAILURE DETECT
P. OFF [H]	POWER OFF Ⓗ
P. OFF [L]	POWER OFF Ⓛ
PAL [H]	PAL Ⓗ
PAL [L]/NTSC [H]	PAL Ⓛ/NTSC Ⓗ
PB ADJ OUT	PLAYBACK ADJUST OUTPUT
PB OUT	PLAYBACK OUTPUT
PB. H	PLAYBACK Ⓗ
PFG	PG/FG
PHOTSN +B	PHOTO SENSOR +B
PICT. CNT	PICTURE CONTROL
PLAY LED/RVS LED	PLAY LED/REVERSE LED
PLAY. PO	PLAY POSITION
PLAY/R. LED	PLAY LED/REVERSE LED
PLY/DEW	PLAY/DEW Ⓗ
POWER OFF [L]	POWER OFF Ⓛ
PREROLL [H]	PREROLL Ⓗ
PWRFAIL	POWER FAILURE DETECT
R. CH [H]	Rch Ⓗ
R. CH [L]	Rch Ⓛ
R. ST	RESET
R/S/F	REVERSE Ⓗ/STOP Ⓜ/FORWARD Ⓛ
RCH [H]	Rch Ⓗ
REC 12V	RECORDING 12V
REC CHROMA	RECORDING CHROMINANCE SIGNAL
REC H	RECORDING Ⓗ
REC IN	RECORDING INPUT
REC OUT [L]	RECORDING OUTPUT Ⓛ
REC START	RECORDING START
REC VR [C]	RECORDING VOLUME (COMMON)
REC VR [L]	RECORDING VOLUME (L)
REC VR [R]	RECORDING VOLUME (R)
REC Y	RECORDING LUMINANCE SIGNAL
REC [H]	RECORDING Ⓗ
REC. C	RECORDING CHROMINANCE SIGNAL
REC. Y	RECORDING LUMINANCE SIGNAL
REC/EE CTL	RECORDING/EE CONTROL
REEL-T	REEL PULSE (TAKE-UP)
REEL-S	REEL PULSE (SUPPLY)
REGULATOR FILTER	REGULATOR FILTER
RESET	RESET
REV M F/R	REVIEW MOTOR FORWARD/REVERSE
REV M V1	REVIEW MOTOR V1
REV M V2	REVIEW MOTOR V2
REV MOTOR F/R	REVIEW MOTOR FORWARD/REVERSE
REV MOTOR V1	REVIEW MOTOR V1
REV MOTOR V2	REVIEW MOTOR V2
REV MOTOR [+]	REVIEW MOTOR (+)
REV MOTOR [–]	REVIEW MOTOR (+)
REV. M. GND	REVIEW MOTOR GND
RF. CHROMA	RF CHROMINANCE SIGNAL

RF OUT	RF OUTPUT
RF Y	RF LUMINANCE SIGNAL
RF. Y. IN	RF LUMINANCE SIGNAL INPUT
RF. Y. OUT	RF LUMINANCE SIGNAL OUTPUT
ROTAR. SW	ROTARY SW
ROTARY	ROTARY SW
RST	RESET
RST [L]	RESET Ⓛ
Rch/INST	Rch/INSERT
S IN	SERIAL DATA INPUT
S OUT	SERIAL DATA OUTPUT
S-PHOTO	SUPPLY PHOTO TRANSISTOR
S-RL. PLS	SUPPLY REEL PULSE
S. CLK	SERIAL CLOCK
S. CLK/AV	SERIAL CLOCK/AV
S. DATA	SERIAL DATA
S. DATA/A	SERIAL DATA
S. PHOTO	SUPPLY PHOTO TRANSISTOR
S. TAB [L]	SAFETY TAB SW ON Ⓛ
S/P/N	SECAM/PAL/NTSC
SC IN	SERIAL CLOCK INPUT
SC OUT	SERIAL CLOCK OUTPUT
SCK SELECT	SERIAL CLOCK SELECT
SEL OUT [L]	SELECT OUTPUT (L)
SEL OUT [R]	SELECT OUTPUT (R)
SHUTTLE 1	SHUTTLE 1
SIF	SOUND INTERMEDIATE FREQUENCY
SLMUT [H]	INPUT SELECT MUTE Ⓗ
SLNID [+]	SOLENOID (+)
SLNID [–]	SOLENOID (–)
SLW TR. MM	SLOW TRACKING MONO MULTI
SLW TR. REF	SLOW TRACKING REFERENCE VOLTAGE
SNS. GND	SENSOR GND
SOFT [H]	SOFT TAPE PLAY Ⓗ
SOFT [H]/NORMAL	SOFT TAPE PLAY Ⓗ/NORMAL Ⓗ
SOLENOID ON [L]	SOLENOID ON Ⓛ
SP [H]	SP Ⓗ
SP/L/SLP	SP/LP
SSS [L]	SLOW/STILL/STOP
STEREO LED	STEREO LED
STEREO [H]	STEREO Ⓗ
STEREO [L]	STEREO Ⓛ
STOP. PO	STOP POSITION
STOP/5V	STOP POSITION/5V
STOP1/TAPE SEL	STOP1 POSITION/TAPE SELECT
STOP1/PAL:ST	STOP1 POSITION/PAL
STOP2. PO	STOP 2 POSITION
STOP2/S-TAB	STOP 2 POSITION/SAFETY TAB SW
STREO [H]	STEREO Ⓗ
SUB BIAS	SUB BIAS
SUB. SW	SUB SW
SVHS CAS [L]	S-VHS CASSETTE Ⓛ
SW. 5. DET	SW 5V DETECT
SYNC [L]	SYNC Ⓛ
SYSCON 5V	SYSTEM CONTROL 5V
SYSTEM	SYSTEM SW
T-PHOTO	TAKE-UP PHOTO TRANSISTOR
T-RL. PLS	TAKE-UP REEL PULSE
T. BUSCLK	TIMER BUS CLOCK
T. BUSLSN	TIMER BUS LISTEN
T. BUSTLK	TIMER BUS TALK
T. END [L]	TAPE END Ⓛ
T. PHOTO	TAKE-UP PHOTO TRANSISTOR
TAPE END [L]	TAPE END Ⓛ
TAPE END [L]/CAM	TAPE END Ⓛ/CAMERA PAUSE
TEST	TEST MODE
TPZ	TRAPEZOIDAL WAVE CIRCUIT
TRIC [L]	TRIC PLAY Ⓛ
TRICK [L]	TRIC PLAY Ⓛ
TRK. ENV	AUTO TRACKING ENVELOPE DETECT
TU. AUDIO	TUNER AUDIO
TU. GND	TUNER GND
TU. V. IN	TUNER VIDEO SIGNAL INPUT
TU. VIDEO	TUNER VIDEO
TUN NOR IN	TUNER NORMAL INPUT
TUN R	TUNER AUDIO (R)
TUN. AUDIO IN	TUNER AUDIO INPUT
TUNER 12V	TUNER 12V
TUNER L	TUNER AUDIO (L)
TUNER V IN	TUNER VIDEO SIGNAL INPUT
TUNER [L]	TUNER AUDIO (L)
TUNER [N]	TUNER AUDIO (NORMAL)
TUNER [R]	TUNER AUDIO (R)
TUNER. 12	TUNER 12V
TUOFF [H]	TUNER OFF Ⓗ
TV. AUDIO	TV AUDIO
TV/VTR	TV/VTR
TXTON [L]	TEXT ON Ⓛ
U. REG45V	UNREGULATOR 45V
UNREG	UNREGULATOR
UNREG19V	UNREGULATOR 19V
V. REF	REFERENCE VOLTAGE
V. EE [H]	VIDEO EE Ⓗ
V. EE [L]	VIDEO EE Ⓛ
VCO REF	REFERENCE OSCILLATER
VD. IN	VIDEO SIGNAL INPUT
VD. OUT	VIDEO SIGNAL OUTPUT
VIDEO EE [L]	VIDEO EE Ⓛ
VIDEO IN	VIDEO SIGNAL INPUT
VIDEO OUT	VIDEO SIGNAL OUTPUT
VM	MOTOR VOLTAGE
VM DOWN [L]	MOTOR VOLTAGE DOWN Ⓛ
VSS	VERTICAL SYNC SIGNAL
VTR [H]	VTR Ⓗ
VTR. 12V	VTR 12V
X IN	OSCILLATOR INPUT
X OUT	OSCILLATOR OUTPUT

<table>
<tr><th>Pin No.</th><th>In/Out</th><th>Port Name</th><th>Function</th></tr>
<tr><td>1</td><td>I</td><td>P.FAIL.IN(L)</td><td>Power failure detection input.</td></tr>
<tr><td>2</td><td>O</td><td>SP(L)</td><td>This port supplies low during SP mode.</td></tr>
<tr><td>3</td><td>I</td><td>S.REEL.PULSE</td><td>Supply reel pulse input.</td></tr>
<tr><td>4</td><td>I</td><td>T.REEL.PULSE</td><td>Take-up reel pulse input.</td></tr>
<tr><td>5</td><td>I</td><td>I.R.</td><td>Remote Controller pulse input.</td></tr>
<tr><td>6</td><td>O</td><td>OSD REC1</td><td>OSD REC control output.</td></tr>
<tr><td>7</td><td>O</td><td>OSD REC1</td><td>OSD REC control output.</td></tr>
<tr><td>8</td><td>O</td><td>FM MUTE(H)</td><td>Hi-Fi audio mute control output.</td></tr>
<tr><td>9</td><td>O</td><td>VIDEO EE(H)</td><td>EE:Low
VV:High</td></tr>
<tr><td>10</td><td>O</td><td>FL DRV CS(L)</td><td>FIP driver chip selection.</td></tr>
<tr><td>11</td><td>O</td><td>SQ PB(H)</td><td>This port is high during S-VHS playback mode.</td></tr>
<tr><td>12</td><td>O</td><td>VTR(H)/TV(L)</td><td>VTR/TV mode switching control.</td></tr>
<tr><td>13</td><td>O</td><td>CH H/L</td><td>Channel switching control.</td></tr>
<tr><td>14</td><td>O</td><td>IC.CLK</td><td>FIP driver serial clock output.</td></tr>
<tr><td>15</td><td>I</td><td>IC.LSN</td><td>FIP driver serial data input.</td></tr>
<tr><td>16</td><td>O</td><td>IC.TLK</td><td>FIP driver serial data output.</td></tr>
<tr><td>17</td><td>O</td><td>IIC.TALK/LSN</td><td>IIC serial data in/output</td></tr>
<tr><td>18</td><td>O</td><td>IIC.CLK</td><td>IIC serial clock output</td></tr>
<tr><td>19</td><td>I</td><td>N.C.</td><td>Not used</td></tr>
<tr><td>20</td><td>O</td><td>HALF WAVE(H)</td><td>Capstan torque switching control.
1. FF/REW Mode
Capstan rotation speed is 1300 rpm or more without VHS-C cassette:High
Capstan rotation speed is less than 1300 rpm without VHS-C cassette:High impedance
VHS-C cassette:High imedance
2. Except FF/REW Mode:High impedance</td></tr>
<tr><td>21</td><td>O</td><td>CURRENT LIMIT</td><td>Capstan motor current limitter output.</td></tr>
<tr><td>22</td><td>O</td><td>CAP R/F</td><td>Capstan rotation direction control.
Reverse : High
Forward : Low</td></tr>
<tr><td>23</td><td>O</td><td>VIDEO H.SW</td><td>Video head switching signal output.</td></tr>
<tr><td>24</td><td>O</td><td>ART V/H/N</td><td>This port supplies artificial vertical sync signal to stabilize the picture in special playback mode.</td></tr>
<tr><td>25</td><td>I</td><td>RESET(L)</td><td>This port is low during reset.</td></tr>
<tr><td>26</td><td>O</td><td>D.A.REC(H)</td><td>Audio signal recording on/off control.</td></tr>
<tr><td>27</td><td>O</td><td>D.REC(H)</td><td>Video signal recording on/off control.</td></tr>
<tr><td>28</td><td>O</td><td>CUR. EMPH(H)</td><td>This port supplies high during a certain time from starting the recording.
<table>
<tr><th>REC MODE</th><th>OUTPUT TIMING</th><th>REC MODE</th><th>OUTPUT TIMING</th></tr>
<tr><td>NTSC 2H</td><td>6 sec</td><td>PAL 3H</td><td>9 sec</td></tr>
<tr><td>NTSC 4H</td><td>12 sec</td><td>---</td><td>---</td></tr>
<tr><td>NTSC 6H</td><td>18 sec</td><td>PAL 6H</td><td>18 sec</td></tr>
</table></td></tr>
<tr><td>29</td><td>O</td><td>128Hz</td><td>Oscillator output for main clock adjustment.</td></tr>
<tr><td>30</td><td>O</td><td>FULL ERASE(L)</td><td>Full erase on/off control.
ON:Low
OFF:High</td></tr>
<tr><td>31</td><td>O</td><td>BIAS(L)</td><td>Audio signal recording on/off control.</td></tr>
<tr><td>32</td><td>O</td><td>A H SW</td><td>Audio head switching signal output.</td></tr>
<tr><td>33</td><td>O</td><td>CAP ET</td><td>Capstan torque control.</td></tr>
<tr><td>34</td><td>O</td><td>CYL ET</td><td>Cylinder torque control.</td></tr>
<tr><td>35</td><td>I</td><td>N.C.</td><td>Not used</td></tr>
</table>

Pin No.	In/Out	Port Name	Function
36	-	VDD	Digital 5V
37	O	14.32MHz OUT	Oscillator output.
38	I	14.32MHz IN	Oscillator input.
39	-	GND	GND
40	I	32KHz IN	Oscillator input.
41	O	32KHz OUT	Oscillator output.
42	I	CLK SLCT	Operating mode select.
43	O	MESECAM	This port supplies high during Superimpose OSD is displayed in MESECAM mode.
44	O	PICTURE MODE1	Picture mode control output.
45	I	V SYNC	Analogue V-sync input.
46	I	PICTURE MODE2	Picture mode control input.
47	O	CV OUT	Composite video signal output.
48	-	GND	GND
49	I	CV IN	Composite video signal input.
50	I	CV IN2	Composite video signal input.
51	-	+5V	+5V
52	I	AFCC	AFC low pass filter output.
53	O	AFCLPF	AFC low pass filter input.
54	O	FSC	4 muliply low pass filter output.
55	I	FSCLPF	4 muliply low pass filter input.
56	O	SECAM MUTE	SECAM chroma signal mute control output.
57	O	SECAM(L)	This port supplies low during SECAM tape playback.
58	O	CHARA+HEM	OSD digital data output.
59	O	I/DK/BG/M	I/M:Low BG/DK:High Impedance
60	O	CHARA	OSD digital data output.
61	O	AVPB(H)	This port supplies high during OSD MENU mode and VV mode.
62	O	AUDIO MUTE(H)	Audio mute control output.
63	O	PAL 9H(H)	This port supplies high during recording in EP(9H) mode.
64	I	GND	GND
65	I	CYL PFG	Cylinder PFG input.
66	I	GND	GND
67	O	CAP FG OUT	Capstan FG output.
68	I	CAP FG	Capstan FG input.
69	O	OREF	Op amp output for 1/2 VDD reference.
70	I	IREF	Op amp input for 1/2 VDD reference.
71	-	GND	GND
72	I	CTL AMP REF	Control amp reference input.
73	-	+5V	+5V
74	I/O	CTL HEAD(+)	Control signal (+) in/output.
75	I/O	CTL HEAD(-)	Control signal (-) in/output.
76	O	PB CTL OUT	Control amp output.
77	I	NC	Not used
78	O	EX FF/REW(L)	This port supplies low during except FF and REW modes.
79	I	MODEL CODE1	Model code input.
80	I	MODEL CODE2	Model code input.
81	I	NC	Not used
82	O	LOAD(H)	This port supplies high during the mechanism is loaded.
83	O	UNLOAD(H)	This port supplies high during the mechanism is unloaded.
84	I	DEW SNS	Dew detection input.

<table>
<tr><th>Pin No.</th><th>In/Out</th><th>Port Name</th><th>Function</th></tr>
<tr><td>85</td><td>I</td><td>NORM/SERV/T2/TEST</td><td>Normal/Service/Test2/Test mode selection.
<table>
<tr><th>INPUT VOLTAGE</th><th>MODE</th></tr>
<tr><td>More than 4.0V</td><td>Normal</td></tr>
<tr><td>2.5V - 4.0V</td><td>Service</td></tr>
<tr><td>1.0V - 2.5V</td><td>Test 2</td></tr>
<tr><td>Less than 1.0V</td><td>Test</td></tr>
</table></td></tr>
<tr><td>86</td><td>I</td><td>T-PHOT</td><td>This port receives less than 2.4V when Take-up photo sensor detects the tape beginning.</td></tr>
<tr><td>87</td><td>I</td><td>S-PHOT</td><td>This port receives less than 2.4V when Supply photo sensor detects the tape end.</td></tr>
<tr><td>88</td><td>I</td><td>T.S.CURVE</td><td>Tuner S curve input.</td></tr>
<tr><td>89</td><td>I</td><td>TRACKING ENVE</td><td>Playback envelope input for auto tracking adjustment.</td></tr>
<tr><td>90</td><td>I</td><td>POS SW1</td><td rowspan="3">Mechanism position detection input.
<table>
<tr><th>P.SW 3</th><th>P.SW 2</th><th>P.SW 1</th><th>Position(Mode) Name</th></tr>
<tr><td>0</td><td>0</td><td>0</td><td>EJECT</td></tr>
<tr><td>0</td><td>0</td><td>1</td><td>CASSETTE DOWN</td></tr>
<tr><td>0</td><td>1</td><td>0</td><td>REV,REV SLOW</td></tr>
<tr><td>0</td><td>1</td><td>1</td><td>MID(LOADING/UNLOADING)</td></tr>
<tr><td>1</td><td>0</td><td>0</td><td>PLAY/REC,STILL/PAUSE,CUE,FWD SLOW,STOP3*1</td></tr>
<tr><td>1</td><td>0</td><td>1</td><td>STOP</td></tr>
<tr><td>1</td><td>1</td><td>0</td><td>FF/REW</td></tr>
<tr><td>1</td><td>1</td><td>1</td><td>INTERMEDIATE</td></tr>
</table>
(*1) The Pinch Roller is on the Capstan motor shaft.</td></tr>
<tr><td>91</td><td>I</td><td>POS SW2</td></tr>
<tr><td>92</td><td>I</td><td>POS SW3</td></tr>
<tr><td>93</td><td>I</td><td>S.TAB(L)</td><td>This port receives low while the cassette tape with safety tab is inserted.</td></tr>
<tr><td>94</td><td>I</td><td>N.C.</td><td>Not used</td></tr>
<tr><td>95</td><td>O</td><td>POWER SAVE(H)</td><td>FIP on/off control during power off.
FIP off:High
FIP on:Low</td></tr>
<tr><td>96</td><td>O</td><td>POWER OFF(H)</td><td>Power on/off control.</td></tr>
<tr><td>97</td><td>O</td><td>SLOW MODE (H)</td><td>Not Used</td></tr>
<tr><td>98</td><td>O</td><td>ROTARY SW</td><td>Rotary switching signal output.</td></tr>
<tr><td>99</td><td>O</td><td>H.A.SW</td><td>Head amp switching signal output.
1. 4 Head model
LP/EP:High
SP:Low
2. 2 Head model
Low</td></tr>
<tr><td>100</td><td>I</td><td>ENVE SELECT</td><td>This port receives the playback envelope signal level to select the video head in special playback mode.</td></tr>
</table>

MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

IC4501

SELECT SW CONTROL
MUTE CONTROL
VOLUME CONTROL

IIC BUS INTERFACE

IIC DATA
IIC CLOCK

TO/FROM SYSTEM CONTROL

REC LEVEL CONTROL

AUDIO OUT(R)
AUDIO OUT(L)

QR4503
QR4502
MUTE

LINE SELECT
R
L

AV1 (REAR)
AUDIO IN(R)
AUDIO IN(L)

AV2 (FRONT)
AUDIO IN(R)
AUDIO IN(L)

DECODER SELECT

OUTPUT SELECT

INPUT SELECT

RCH REC/PB PROCESS
LCH REC/PB PROCESS
D.O.C

AUDIO H.SW
FROM SYSTEM CONTROL

MIX AMP

TO TUNER
RFC AUDIO OUT
QR4501

FROM DECODER
TUNER AUDIO(R)
TUNER AUDIO(L)

MODULATOR/ DEMODULATOR
B.P.F
AGC
PREAMP & SW

P3501 8
P3501 9
P3501 10

Hi-Fi AUDIO HEAD

IC3001

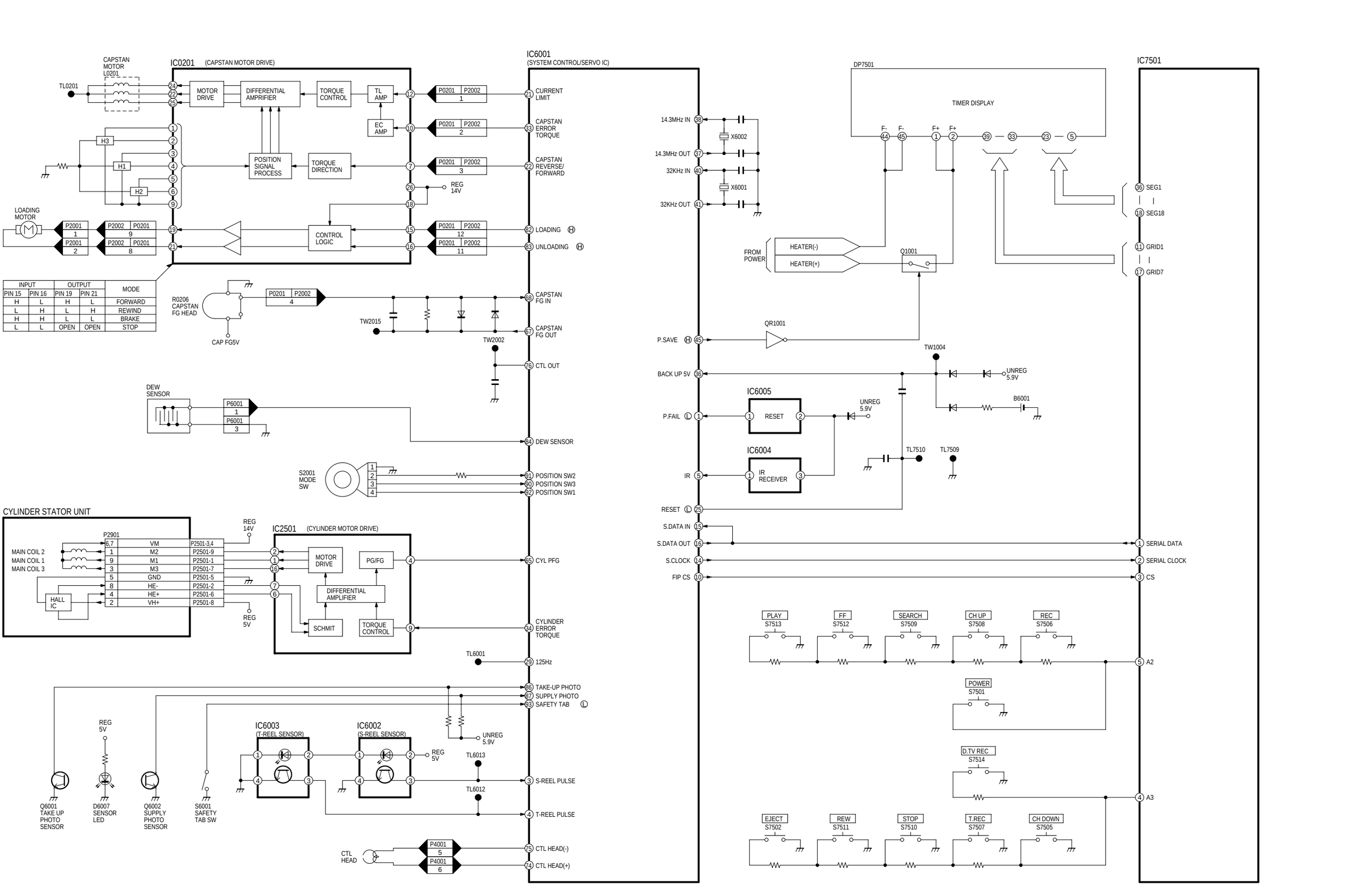
FROM DECODER/ TV DEMODU
TUNER AUDIO(N)

SW GAIN

NORMAL SELECT

TO/FROM AC HEAD
A.HEAD(W)
A.HEAD(R)

ALC



INPUT		OUTPUT		MODE
PIN 15	PIN 16	PIN 19	PIN 21	
H	L	H	L	FORWARD
L	H	L	H	REWIND
H	H	L	L	BRAKE
L	L	OPEN	OPEN	STOP

MAIN SIGNAL PATH IN REC MODE

MAIN SIGNAL PATH IN PLAYBACK MODE

IC3001

IC3501

TO SYSTEM CONTROL

C SYNC

FROM TUNER

TUNER VIDEO

JK3001 (FRONT)

VIDEO IN

TO/FROM SYSTEM CONTROL

SYS VIDEO IN

ART V/H/N

JK3002 (REAR)

VIDEO IN

VIDEO OUT

TO TUNER

RFC VIDEO OUT

Q3001

AMP

VIDEO OUT

TO/FROM SYSTEM CONTROL

IIC CLOCK

IIC DATA

IIC BUS TRANSCEIVER

HSS

YNR

1H DELAY

LPF

DDC

NC1

PICT

NC2

DET

NOR

CLP1

EE/ FAMI

DTE

EE

FAMI

VV

MAIN LPF

AGC

Y/C

C

Y

Y/C MIX

AMP

ART SYNC

SUB CLAMP

NLE NLDE

SUB LPF

FM DEM

DOUB LIM

ENV DET

PEAKING

H-TRAP

W/D CLIP

DEV ADJ

MAIN EMPH

FM MOD

L-TRAP &HPF

AGC DET

RF AGC

Y/C MIX

REC-Y ADJ

LPF

QR3502

PAL 9H

QR3501

SP

TW3030

TW3001

AMP & H.AMP SW

PREAMP & H.SW

H.AMP SW

LP L

LP COM

LP R

SP L

SP COM

SP R

P3501 3

P3501 2

P3501 1

P3501 6

P3501 5

P3501 4

TO/FROM CYLINDER VIDEO HEAD

HEAD SW

H.AMP SW

CURR.EMPH Ⓗ

D.REC Ⓗ

TRICK Ⓛ

TRACKING ENV.

ENV. SELECT

TO/FROM SYSTEM CONTROL

COLOUR KILLER SW

BURST UP/DOWN

630KHz BPF

CACC

REC-C ADJ

BPF (FAMI)3.58M (PAL-PB)2.2M (NTSC-PB) 1.79M

BPF 3.58M/ 4.43M

VV/ FAMI

FAMI/VV

BM-B (PB)2.2/1.79M → 4.43/3.58M (FAMI)2.2M → 4.43M

NTSC ALTERNATION

LPF

BM-A (REC)4.43/3.58M (PB)630K → 2.2/1.79M (FAMI)3.58M → 2.2M

2HDL 1HDL

0HDL

0HDL

ACC

ACC DET

FAMI/ VV SP

VV LP

PHASE ROTATION

X2

2fsc

fsc

1/2

1/4

1/4

SUB BM

F.DET

VXO

VCO

1/40

APC CK DET

AFC

SIDE LOCK

FH

PB Q ADJ

FSC

ROTARY SW

TO/FROM SYSTEM CONTROL

+5V

QR3003

QR3004

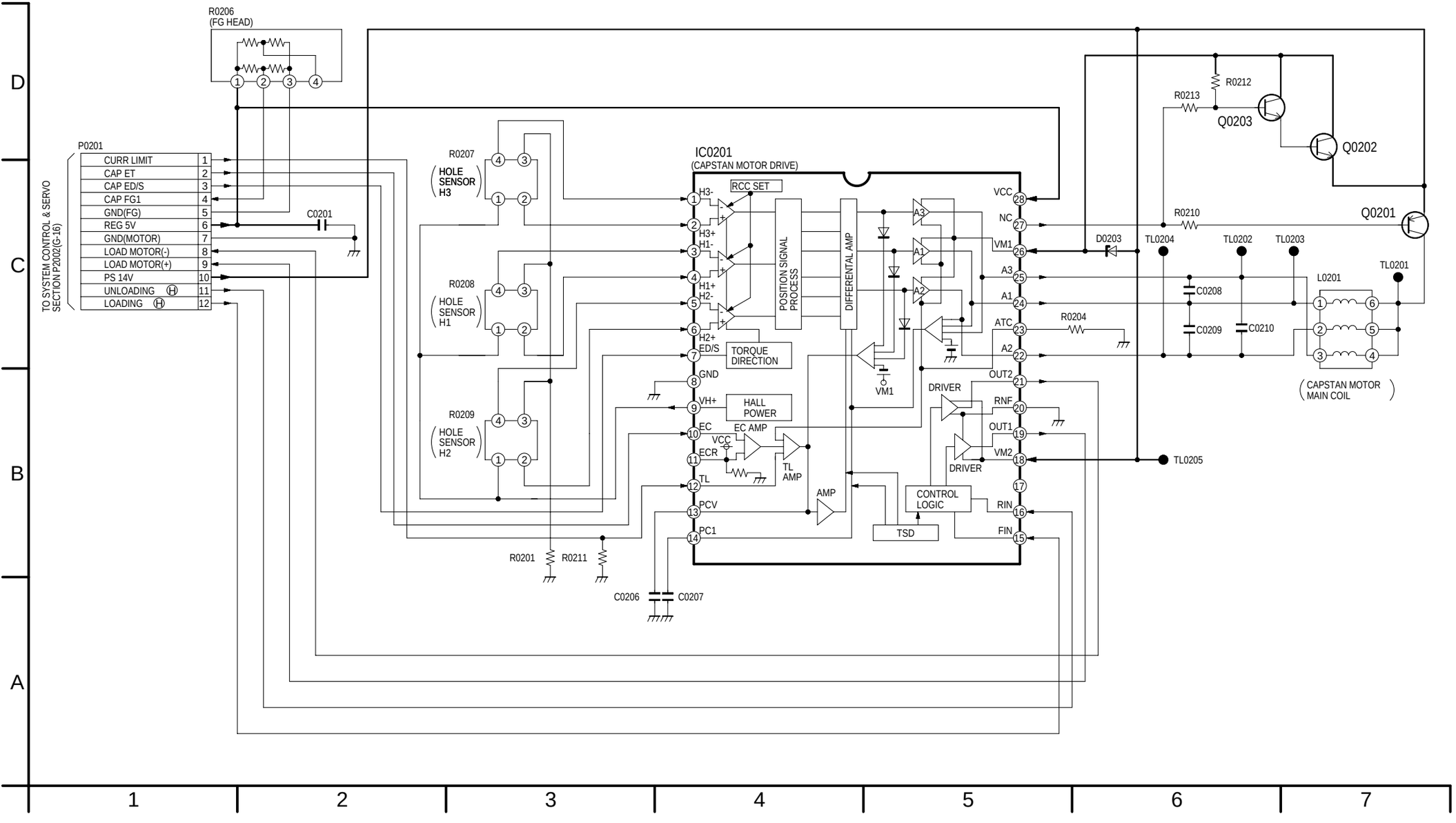
SP

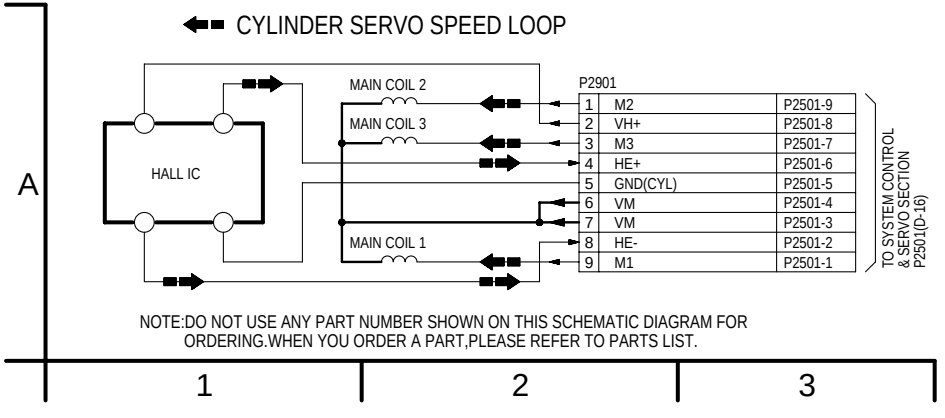
FROM SYSTEM CONTROL

X3001

X3002

FAMI MODE:When setting the NTSC CONVERTER to ON on the OSD Screen Display, the signals from NTSC Signal Source (ex.NTSC GAME Machine)connected to the VCR can be appeared on the PAL TV.However when recording, it is not recorded correctly.


R0206
(FG HEAD)
P0201
CURR LIMIT 1
CAP ET 2
CAP ED/S 3
CAP FG1 4
GND(FG) 5
REG 5V 6
GND(MOTOR) 7
LOAD MOTOR(-) 8
LOAD MOTOR(+) 9
PS 14V 10
UNLOADING Ⓗ 11
LOADING Ⓗ 12
TO SYSTEM CONTROL & SERVO SECTION P2002(G-16)
C0201
R0207
HOLE SENSOR H3
R0208
HOLE SENSOR H1
R0209
HOLE SENSOR H2
IC0201
(CAPSTAN MOTOR DRIVE)
RCC SET
POSITION SIGNAL PROCESS
DIFFERENTIAL AMP
TORQUE DIRECTION
HALL POWER
EC AMP
TL AMP
AMP
TSD
CONTROL LOGIC
DRIVER
DRIVER
H3-
H3+
H1-
H1+
H2-
H2+
ED/S
GND
VH+
EC
VCC
ECR
TL
PCV
PC1
VCC
NC
VM1
A3
A1
A2
ATC
A2
OUT2
RNF
OUT1
VM2
RIN
FIN
VM1
R0201
R0211
C0206
C0207
R0212
R0213
Q0203
Q0202
Q0201
R0210
D0203
TL0204
TL0202
TL0203
TL0201
L0201
C0208
C0209
C0210
R0204
CAPSTAN MOTOR MAIN COIL
TL0205



NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

AUDIO SIGNAL PATH

PK7301
TO POWER SUPPLY/RF SECTION PK7301(B-9)
SIF 1 (1.6)
GND 2
TUNER AUDIO (N) 3 (0)
4
5
6
SW 5V 7 (5.0)

PK7302
TO POWER SUPPLY/RF SECTION PK7302(A-9)
IIC CLOCK 1 (5.0)
IIC DATA 2 (5.0)
3
TUNER AUDIO (R) 4 (0)
GND 5
TUNER AUDIO (L) 6 (0)

R7315 4300
C7318 16V10
R7316 6800
C7326 1500P
R7314 3300
C7316 0.1
C7317 6V100

IC7301
TDA7873H

R7309 220
TL7302
C7319 16V47
TL7301
C7320 4700P
C7321 50V0.47

0 2.4 0 2.4 2.4 2.4 2.4 0 0 2.5 2.5
44 43 42 41 40 39 38 37 36 35 34

AF SWITCH

R7307 6800
C7327 1500P
C7328 1500P
R7308 6800
C7313 16V10
C7312 16V10
R7318 4300
R7320 3300
R7319 3300
R7317 4300

C7310 0.01
C7309 0.01

STEREO DECODER STEREO ADJUST

POWER SUPPLY

AF AMPLIFIER 1
AF AMPLIFIER 2

C7308 50V0.47 (N)

FM DEMODULATOR NARROW-BAND PLL SC1
FM DEMODULATOR NARROW-BAND PLL SC2

DIGITAL IDENTIFICATION PILOT NARROW-BAND PLL

IIC BUS TRANSCEVER

C7322 50V0.47 (N)
C7323 0.1
R7311 7500
R7312 100
R7313 100
C7301 0.01
R7301 0
C7303 50V0.47 (N)
C7302 50V0.47 (N)
R7304 4700
VR7301 10KB

1 2.4
2 2.4
3 2.4
4 0
5 0
6 2.4
7
8 2.4
9 0
10 2.4
11 0

33 2.4
32 2.4
31 2.9
30 5.0
29 5.0
28 5.0
27
26 1.4
25 2.4
24 1.5
23 0

12 0
13 0
14 2.9
15 OSC 2.6
16 0
17 0
18 2.8
19 0
20 0
21 2.3
22 0

TL7303

R7306 5600
C7307 680P
C7306 0.012
X7301 VSX1086
R7305 5600
C7304 680P
C7305 0.012

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE ON THIS DIAGRAM IS STOP MODE.

NOTE: DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING. WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

F E D C B A

1 2 3 4 5 6 7 8

Ⓡ :TO POWER SUPPLY/RF SECTION

Ⓢ :TO SYSTEM CONTROL & SERVO SECTION

Ⓥ :TO LUMINANCE & CHROMINANCE/AUDIO SECTION

VIDEO MAIN SIGNAL PATH IN REC MODE

VIDEO MAIN SIGNAL PATH IN PLAYBACK MODE

AUDIO MAIN SIGNAL PATH IN REC MODE

AUDIO MAIN SIGNAL PATH IN PLAYBACK MODE

IC3501
AN3368SB

Ⓡ VIDEO 5V
Ⓡ GND
L3501 68u
C3502 6V47
C3501 0.01
5.1 36 VCC
0 35 NC
Ⓢ ENV.SELECT
4.9 34
CMP
DET
DET
C3503 0.01
0.7 (3.3) 33
Ⓢ TRICK Ⓛ
0.3 32
Ⓥ REC Y+C
C3504 0.01
1.4 31
ZAP
Ⓥ RF Y+C
R3501 330
2.5 (2.9) 30
CHROMA AMP
C3505 0.1
29 GND
R3505 1200
R3502 560
2.7 (1.9) 28
AT
0
Ⓢ PAL 9H Ⓗ
0
QR3502
MUN2212
(PAL 9H Ⓗ :ON)
4.0 (2.0) 27
R3504 470
0 26 NC
0
0.4 (4.9) 25 REC Ⓗ
Ⓢ SP Ⓛ
0
QR3501
MUN2212
(SP Ⓛ :OFF)
0 24 NC
Ⓢ TRACKING ENV.
Ⓢ D.REC Ⓗ
Ⓢ CURR EMPH Ⓗ
0 CURR.EMPH 23
C3506 0.01
0 22 NC
0 21 NC
0 20 NC
0 19 NC

H SW 1 2.5
H.A SW 2 0.1
C3056 1000P
HEAD SW Ⓢ
H.AMP SW Ⓢ
0 3 (3.0)
+
HA4
-
0.7 (2.9) 4
LB3501 0
C3507 0.1
H
GND 5
L
-
HA3
0.7 (2.9) 6
LB3502 0
C3508 0.1
L
H
-
HA2
0.7 (2.4) 7
LB3503 0
C3509 0.1
L
GND 8
H
-
HA1
0.7 (2.4) 9
LB3504 0
C3510 0.1
+
0 10 (2.5)
11 0
NC 12 0
NC 13 0
NC 14 0
NC 15 0
NC 16 0
NC 17 0
NC 18 0

P3501
(TO CYLINDER UNIT)

1	LP R
2	LP COM
3	LP L
4	SP R
5	SP COM
6	SP L
7	GND
8	AUDIO HEAD L
9	AUDIO HEAD COM
10	AUDIO HEAD R

AUDIO HEAD R Ⓥ
AUDIO HEAD COM Ⓥ
AUDIO HEAD L Ⓥ

NOTE:THE MEASUREMENT MODE OF THE DC VOLTAGE IN THE BRACKETS ( )ON THIS DIAGRAM IS RECORD MODE WITH PAL COLOUR.(SP MODE)
THE MEASUREMENT MODE OF THE DC VOLTAGE OUT OF THE BRACKETS ON THIS DIAGRAM IS PLAYBACK MODE WITH PAL COLOUR SIGNAL.(SP MODE)

NOTE:DO NOT USE ANY PART NUMBER SHOWN ON THIS SCHEMATIC DIAGRAM FOR ORDERING.WHEN YOU ORDER A PART,PLEASE REFER TO PARTS LIST.

E D C B A

1 2 3 4 5 6 7

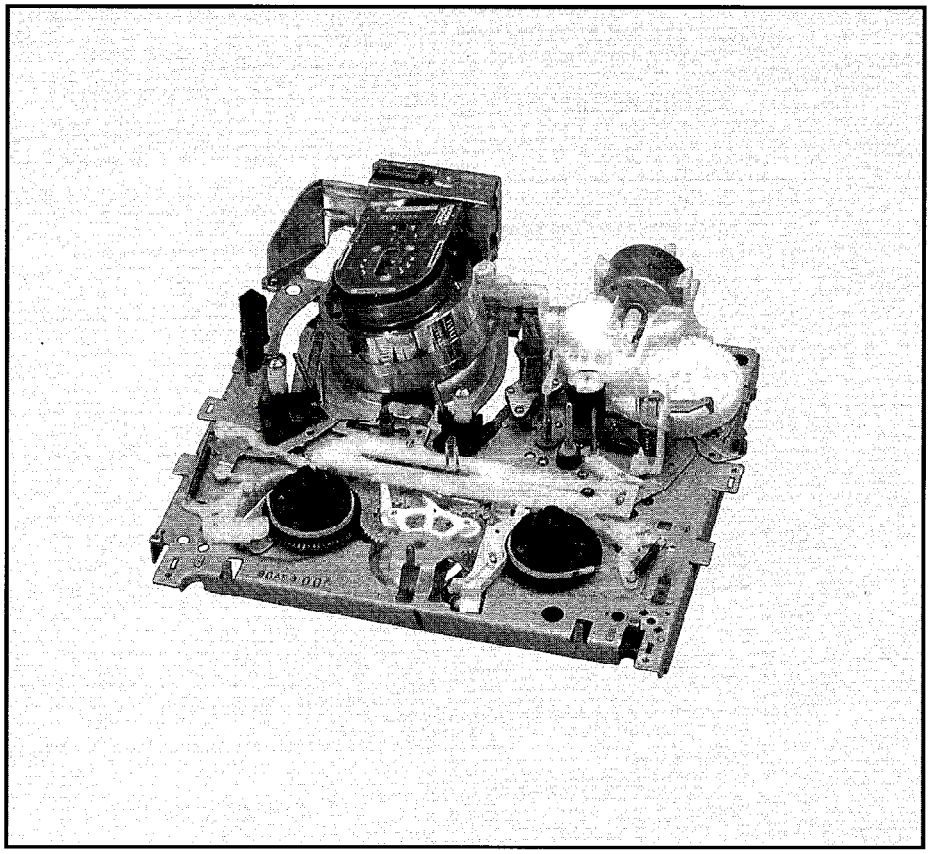
ORDER NO. VRD9612M129

Service Manual

Video Cassette Recorder

Panasonic VHS

Z-MECHANISM CHASSIS



INTRODUCTION

The Z-Mechanism chassis are built in several Panasonic VHS Video Cassette Recorders from NV-SD series in 1996.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

© 1996 Matsushita Electric Industrial Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

CONTENTS

1. OUTLINE OF Z MECHANISM 1
   1-1. The tape transport path 1
   1-2. Cassette holder unit 2
   1-3. Reel brake 2
   1-4. Number of Gear Phase Alignment Point and Replacement Parts 3
   Z Mechanism Components 4
   FLOW CHART OF LOADING MECHANISM 5
2. REMOVAL OF CASSETTE TAPE 6
   2-1. Removal of compulsory loading 6
   2-2. Removal of manual operation of Main cam gear 6
3. REMOVAL OF CASSETTE HOLDER UNIT & MECHANISM CHASSIS 7
   3-1. Removal of Cassette holder unit 7
   3-2. Removal of Mechanism chassis 8
4. DISASSEMBLY/ASSEMBLY METHOD FOR MECHANISM 9
   4-1. Disassembly of mechanism 9
   4-2. Assembly and phase adjustment of mechanism 14
   4-3. Assembly of mechanism chassis 20
   Parts Access Flow Chart 23
5. MECHANICAL ADJUSTMENT PROCEDURES 24
   5-1. Tension post position adjustment 24
   5-2. Back tension adjustment 24
   5-3. P2 and P3 posts adjustment 25
   5-4. Tape interchangeability adjustment 25
      5-4-(1). P2 AND P3 POSTS ADJUSTMENT 26
      5-4-(2). ADJUSTMENT OF P4 POST 27
      5-4-(3). HEIGHT ADJUSTMENT OF A/C HEAD 28
      5-4-(4). FINE-ADJUSTMENT OF A/C HEAD 28
      5-4-(5). ADJUSTMENT OF X-VALUE 28
      5-4-(6). FINE-ADJUSTMENT OF X-VALUE 29
   Servicing Fixtures & Tools 30
6. SELF-TEST INDICATION DISPLAY 31
7. SERVICE INFORMATION DISPLAY 33
   7-1. Purpose of Service Information Display 33
   7-2. Turning on Service Information Display 33
   7-3. Use of Service Modes 34
   7-4. Service Information Number 36
   7-5. Test Mode 36
   7-6. Timing chart from Mode SW to System control IC 38
8. SYSTEM CONTROL CIRCUIT & MECHANISM CONTROL CIRCUIT 39
   8-1. STOP 3 Specification 39
   8-2. Stand-by in the STOP3 position 39
   8-3. Supply and Take-up Sensors 40
   8-4. Safety Tab Switch 40
   8-5. Dew Sensor 41
   8-6. Setting time for each mode 42
   8-7. Operation of short CUE 42
   8-8. Loading/Unloading Mechanism lock 42
   8-9. Cassette loading/unloading lock 42
   8-10. Reel lock operation 43
   8-11. Cylinder lock 43
   8-12. Mode transition 44
   8-13. Power on reset 44
   8-14. Linear time counter operation 44
   8-15. Tape speed in CUE/REV mode 44
   8-16. Automatic functions 45
   8-17. CUE/REV lock mode 45
   8-18. FR (Forward/Reverse) search mode 45
   8-19. FF/REW speed 45
   8-20. FF/REW time 45

1. OUTLINE OF Z MECHANISM

1-1. The tape transport path

(1) Mechanism Chassis

Aluminium Chassis has been changed to sheet metal (Thickness: 1.2 mm).

(2) Capstan position (Cassette-in method/Capstan-in method)

The Tape does not touch the Cassette tape so that the rationalization has been promoted such as Reel gear pinch up/down mechanism has been deleted.

(3) Deletion of P1 post

FE Head has been installed Limiter so that P1 post has been deleted.

(4) A/C Head base combined with P4 post

A/C Head has been combined with P4 post on the same base.

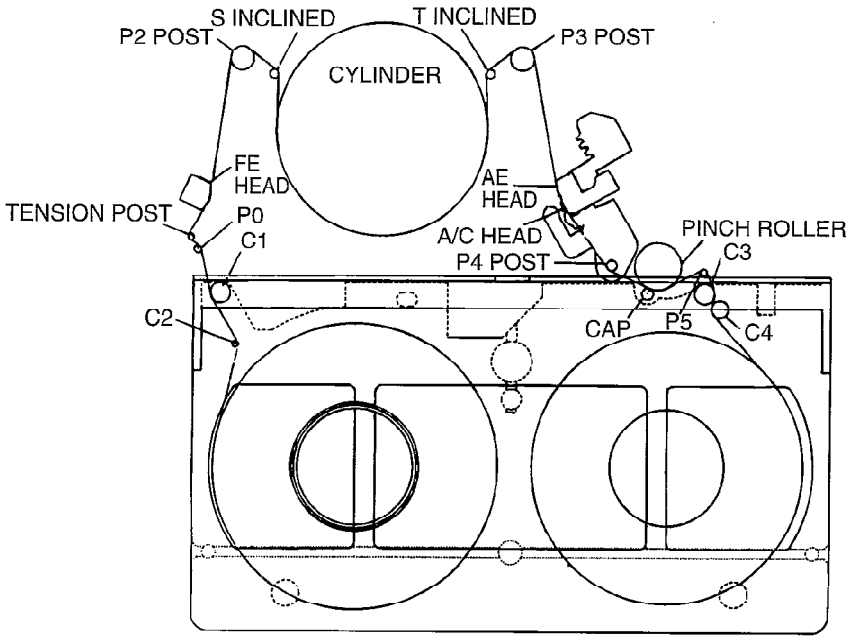
(5) Change of A/C head base type

The change of the angle winding the tape on A/C head has been reduced by the construction of A/C head base has been changed from the revolution type to slide base type.

(6) Improvement of P5 post

P5 post operation has been changed by non-adjustable of the Height and the Tilt adjustment so that the specification has been improved.

Z Mechanism tape transport path in REV mode



1-2. Cassette holder unit

(1) Cassette-in operation

The Rack drive arm drives Main Cam gear by inserting the cassette tape. Consequently, Position switch detects the cassette-in mode so that Loading motor drives. The mode goes to the Stop mode from the Cassette-in through the Loading mode.

① The parts quantity reduction of Cassette holder unit.
(Z Mechanism: 21 pieces, K Mechanism: 36 pieces)
a. Release lever has been installed in Right Side Plate.
b. Cassette guide has been installed in Front Panel unit.
c. Safety lever spring is made by the resin.
d. Opener lever has been changed into the single opener type.
e. One side of Side Plate unit is hung on Chassis in order to fix it.

② Improvement of the cassette insertion
(The force of the cassette insertion Z Mechanism: Approximately 400gm.,
K Mechanism: Approximately 600gm.)
The tooth pitch of Worm gear which has been extended against the previous model, is located on the Motor so that Worm gear can be reversed. Consequently, the Motor rotates before the insertion spring (the combined spring) is working when the cassette tape is inserted, so that the repelled force of the insertion spring has been reduced as differing from the present model.

③ Small-sized Cassette holder unit (Thinned unit)
a. The Wiper arm method which has been adopted, assigned Wiper arm between Cassette Holder Plate and Side Plate so that the small-sized of the width has been realized.
b. To prevent the increment of parts quantity such as Safety lever is used for Pre-open mechanism shown in the present model, and the small-sized unit has been realized by inclining one portion of the L groove in Side Plate.
c. The part of driving change-over is located in the nearest to the center of Reel so that the depth size is compacter.

1-3. Reel brake

(1) Supply Reel Brake is used for Tension Regulator which is composed of the conventional Main brake and the soft brake function.

(2) Take-up Reel Brake is used as Band Brake unit in order to correspond with Supply Reel Brake.

※ Tension Regulator performance:
This is composed of Tension regulator and brake. The tape always is given the tension against the advance direction by Tension band.

(3) Construction of Supply reel tension regulator
Comparison of the construction with the conventional model

	Z Mechanism	K Mechanism
Tension Arm Shaft Bearing construction	Resin	Tension arm
Tension Band	Felt less Lumiller	Felt Lumiller
Braking method	Tension regulator	Main & soft brake

Operating mode and necessary function

Mechanism mode	Necessary function	Operation
Cassette down	Prevention of the tape slag (Soft brake)	Soft brake
Completion of Loading	Prevention of the tape slag (Soft brake)	Tension regulator
REV	Prevention of in Play mode to REV mode (Soft brake)	Tension regulator
PLAY, FF	Back tension adjustment	Same as the conventional
STOP	Main brake function	Tension regulator

(4) Construction of Take-up brake

Take-up brake is used Band brake as well as Supply brake depend on corresponding with Band brake is adopted at the Supply Side.

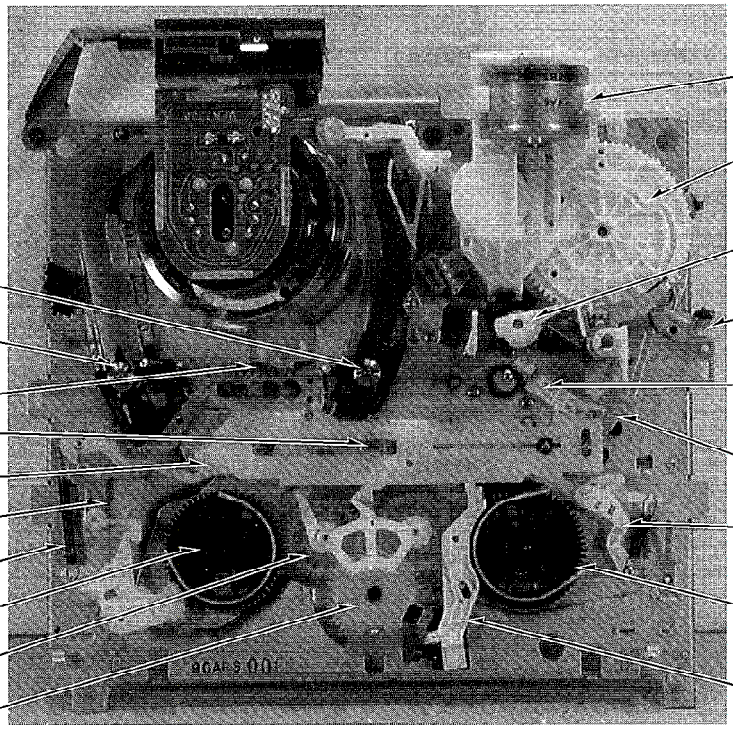
Mechanism mode	Function	Band
EJECT-MID	Soft brake	On
REV	Soft brake	On
PLAY	Release of brake	Off
STOP	Brake	On
FF/REW	Release of brake	Off

1-4. Number of Gear Phase Alignment Point and Replacement Parts

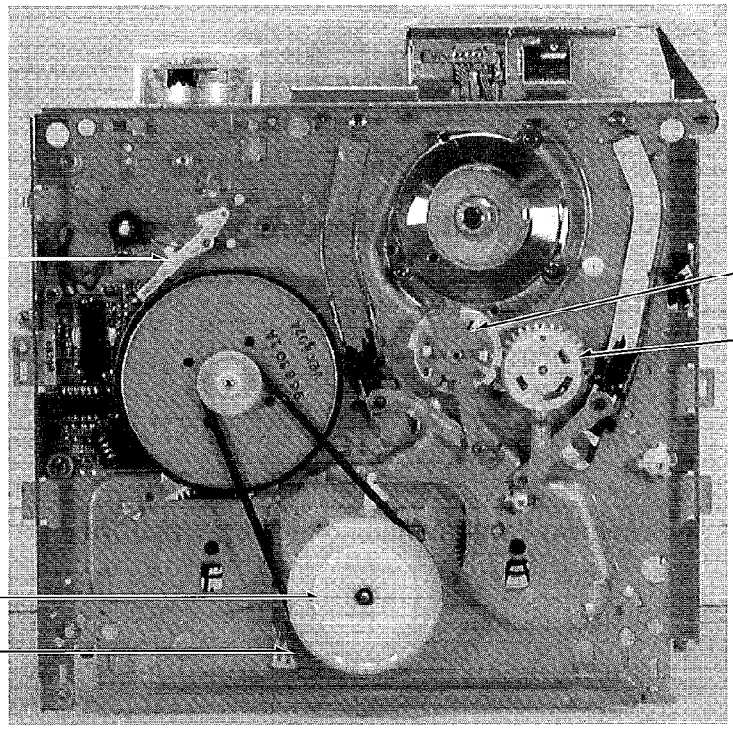
Number of Gear Phase Alignment Point	
G2 Mechanism	12 Alignment Points
G Mechanism	12 Alignment Points
K Mechanism	6 Alignment Points
Z Mechanism	4 Alignment Points
Number of Replacement Parts (including the Screw and Washer)	
G2 Mechanism	Approx.170 Pieces
G Mechanism	Approx. 150 Pieces
K Mechanism	Approx. 100 Pieces
Z Mechanism	Approx. 70 Pieces

Z Mechanism Components

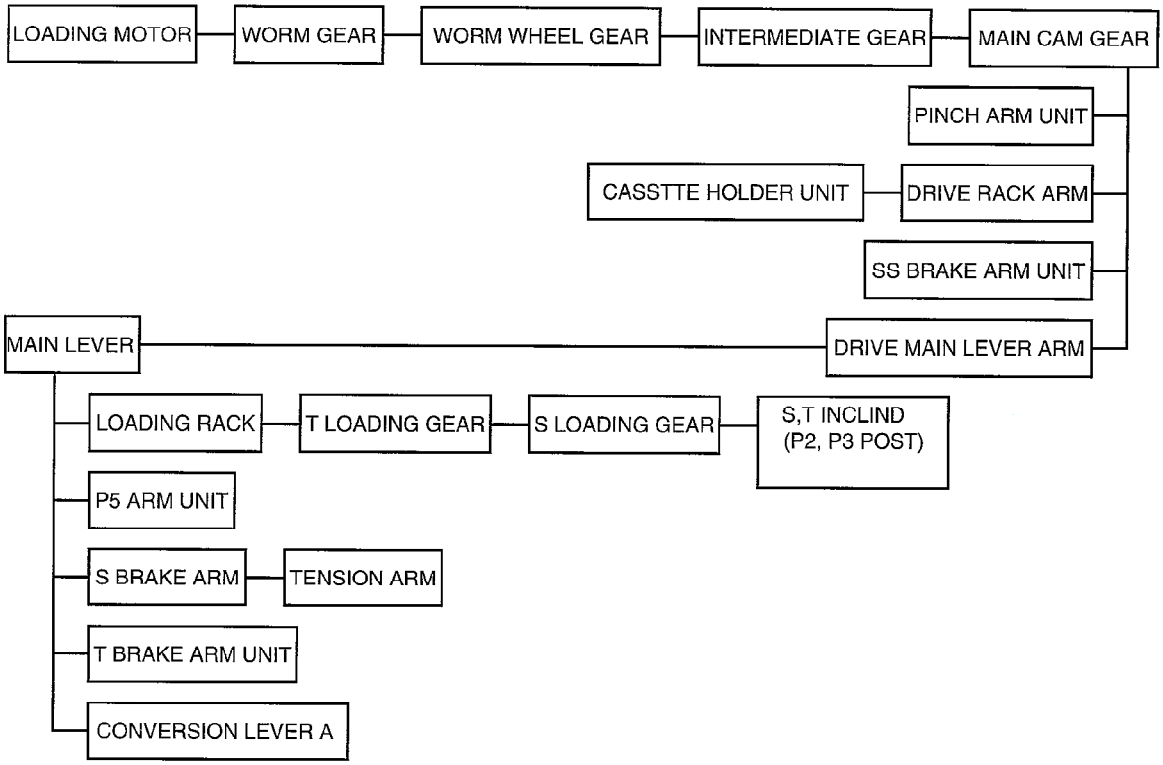
TOP VIEW

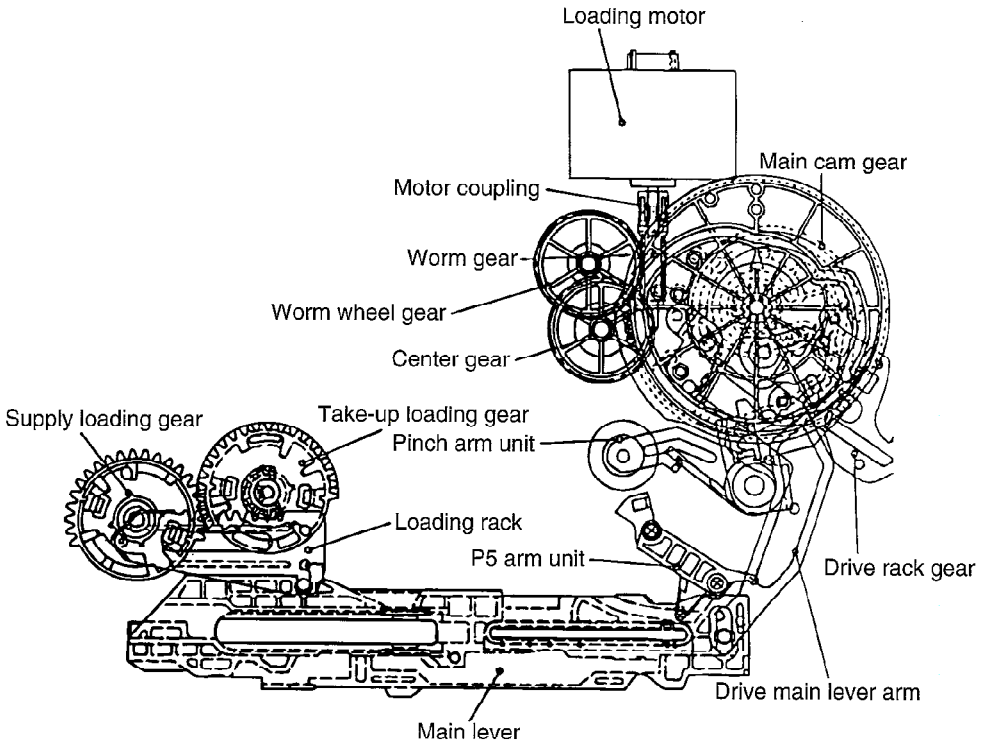


BOTTOM VIEW



FLOW CHART OF LOADING MECHANISM





2. REMOVAL OF CASSETTE TAPE

There are 2 ways to remove a cassette tape.

2-1. Removal of compulsory loading

(1) Press FF, REW and EJECT buttons simultaneously and set the Service Mode 7

(2) Press STOP button in order to unload the mechanism. (Pay an attention of tape slag)
Service Mode Indication :
7 ※※ ※※ (STOP)→7 00 ※※ (EJECT)

2-2 Removal of manual operation of Main cam gear

(1) Disconnect the AC power cord and remove Top Panel.

(2) Rotate Main cam gear to the clockwise and unload the mechanism (Tape is remaining) (Fig. A1).

TOP VIEW

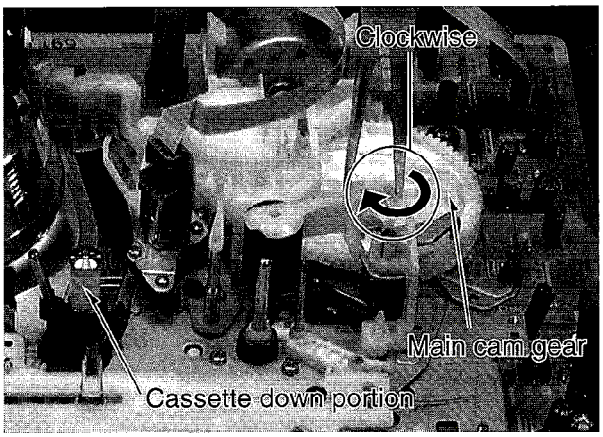


Fig. A1

(3) Rotate the Pole of Capstan motor to the clockwise from the bottom in order to remove the tape slag (Fig. A2).

BOTTOM VIEW

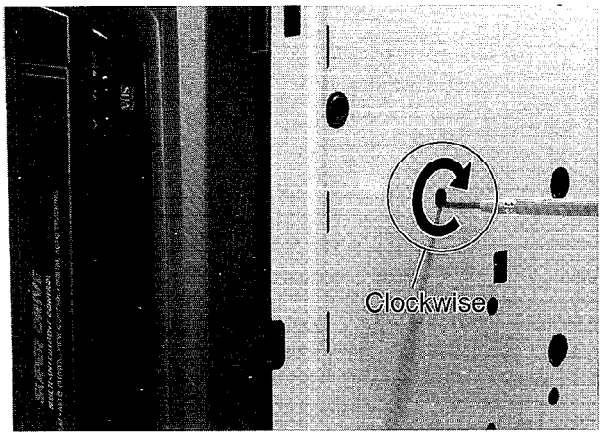


Fig. A2

(4) Rotate Main cam gear to the clockwise in order to eject the cassette tape.

3. REMOVAL OF CASSETTE HOLDER UNIT & MECHANISM CHASSIS

3-1. Removal of Cassette holder unit

(1) Remove Top panel and Front panel unit (Fig. B1)

TOP VIEW

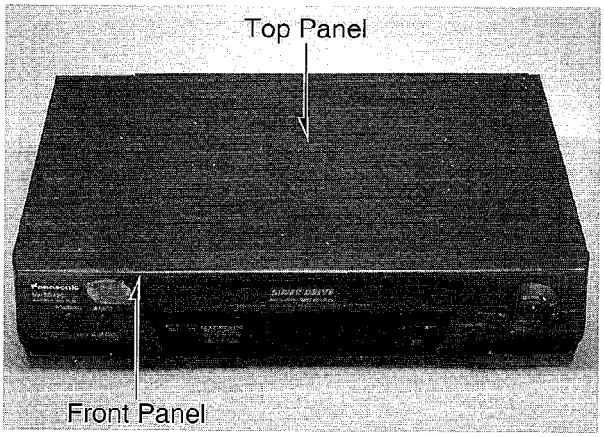


Fig. B1

(2) Remove Top plate

Remove 4 tabs fixing Top plate and remove Top plate (Fig. B2).

※ 4 Tabs should be removed softly duc to they are fragile.

TOP VIEW

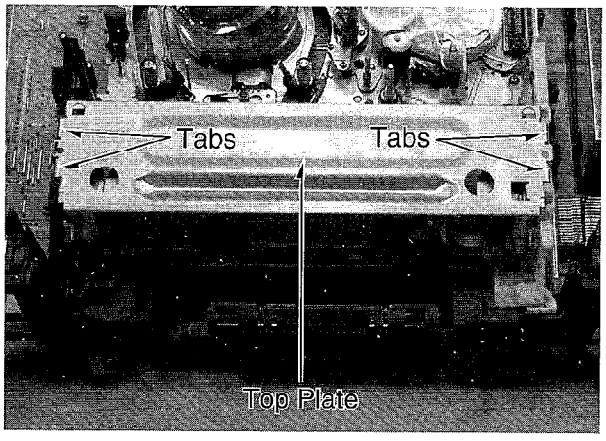


Fig. B2

(3) Remove Casscttc Holder Plate

Keep pressing 2 stoppers on Cassette holder Plate and Press Cassette holder plate to the rear and remove it from Left and Right Side Plate (Fig. B3).

TOP VIEW

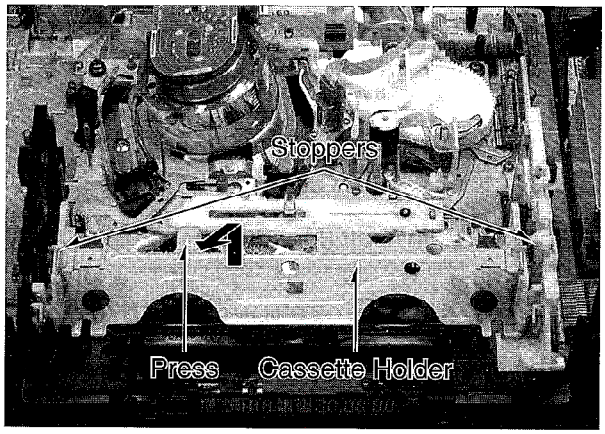


Fig. B3

(4) Remove Left and Right Side Plate

Remove Conjuction spring of Drive gear.

Remove 3 red screws, 3 tabs and remove Left and Right Side Plate (Fig. B4, B5).

TOP VIEW

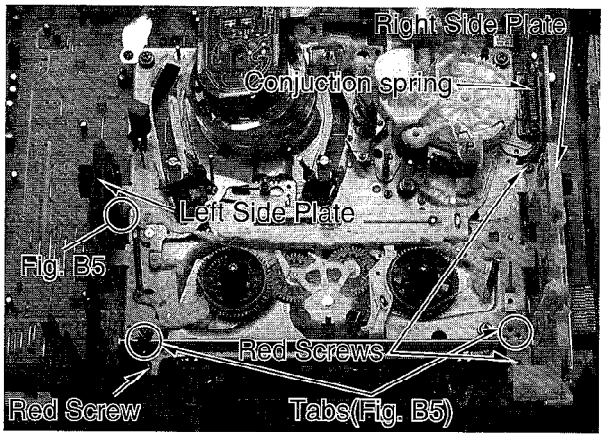


Fig. B4

TOP VIEW

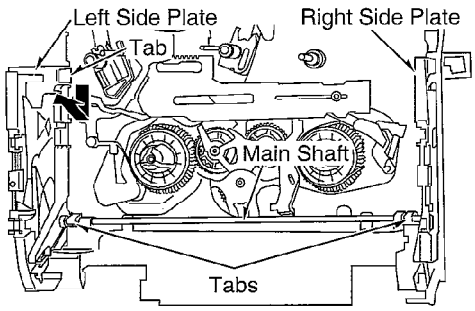


Fig. B5

(5) Remove Main shaft (Fig. B6)

TOP VIEW

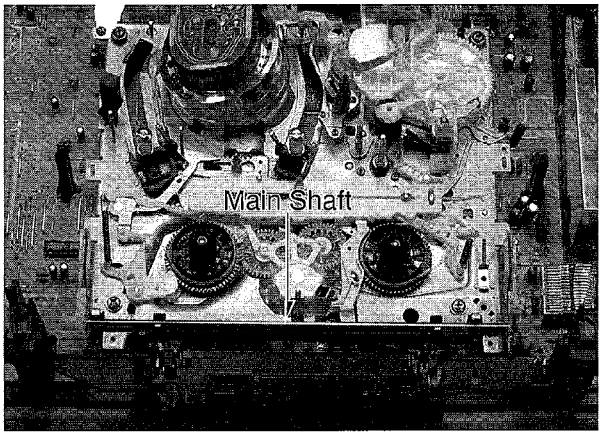


Fig. B6

3-2. Removal of Mechanism chassis

(1) Remove Mechanism chassis

Disconnect P3001, P2502 and P4001. Remove 5 screws (3 red screws and 2 gold screws) on Mechanism chassis and take out Mechanism chassis (Fig. B7).

TOP VIEW

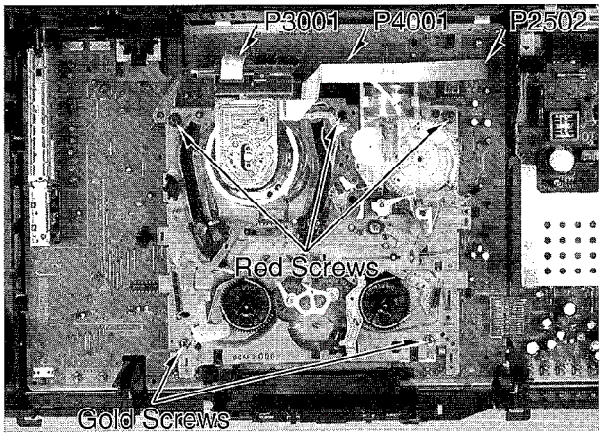


Fig. B7

4. DISASSEMBLY/ASSEMBLY METHOD FOR MECHANISM

4-1. Disassembly of mechanism

1. Removal of Pinch arm

   Unlock the tab (opener space). Remove Opener space and Pinch arm (Fig. C1).

2. Removal of Loading motor unit

   Unlock 3 tabs and remove Loading motor unit (Fig. C1 C2)

   2 tabs of them located on the bottom of the Mechanism (Fig. C2).

TOP VIEW

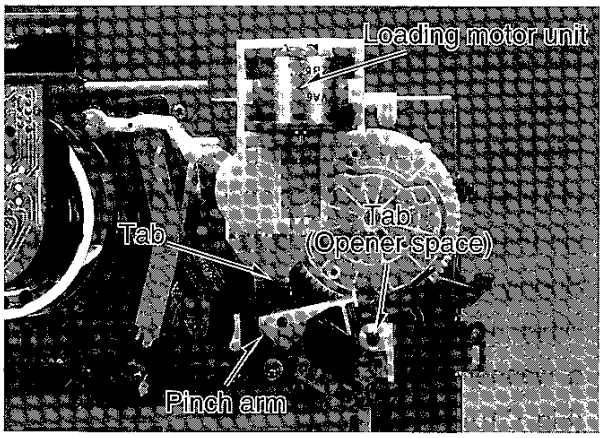


Fig. C1

BOTTOM VIEW

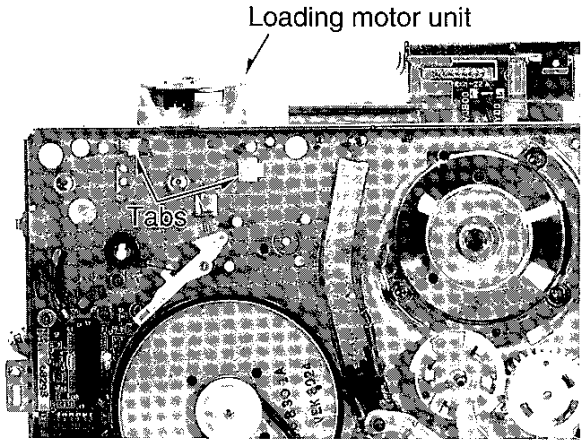


Fig. C2

3. Removal of Main cam gear

   Remove Snap washer located on the bottom of Chassis by using retaining ring remover (Fig. C3) and remove Main cam gear (Fig. C4).

BOTTOM VIEW

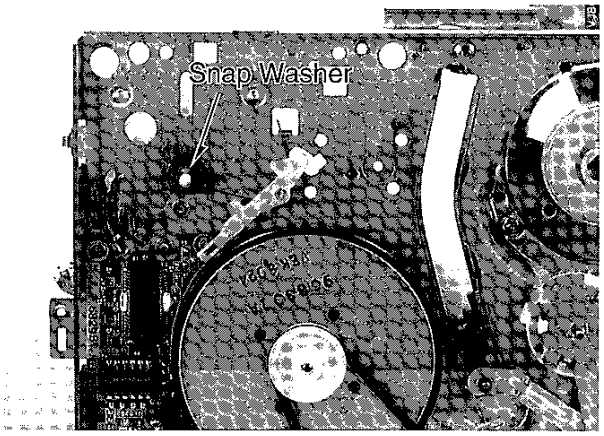


Fig. C3

TOP VIEW

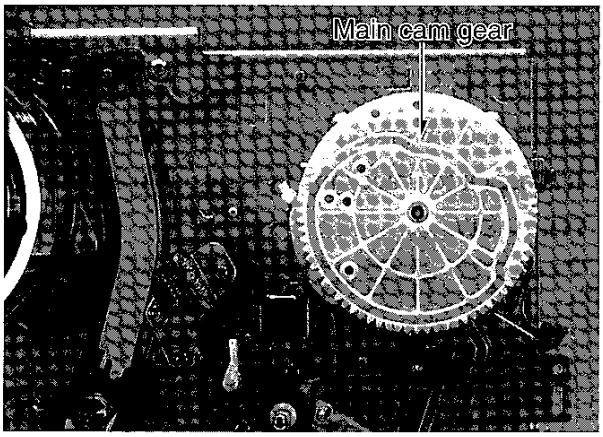


Fig. C4

4. Removal of Drive rack arm

Rotate Drive rack arm to the counterclockwise and remove it (Fig. C5)

TOP VIEW

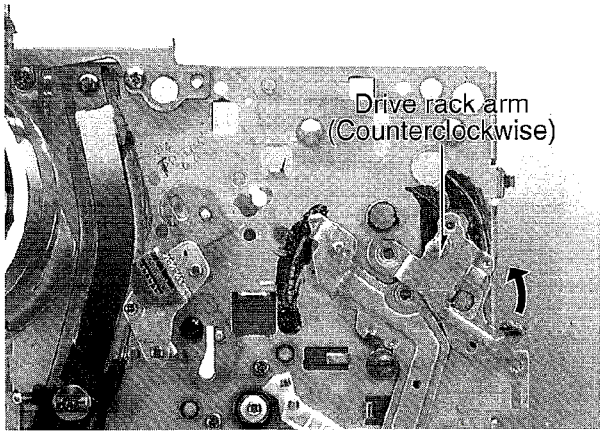


Fig. C5

5. Removal of Main lever, P5 arm and Conversion lever A

Removal cut washer located on the main lever. Unlock 2 tabs of Prism LED and 1 tab on the projection of Chassis while keep lifting the left side of Main lever, and remove Main lever, P5 arm and Conversion lever A (Fig. C6).

※ It is easier to unlock the tabs by using a tweezer.

TOP VIEW

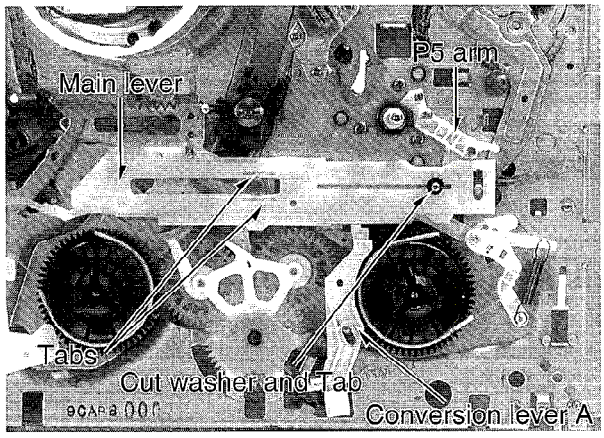


Fig. C6

6. Removal of Drive main lever arm

Rotate Drive main lever arm to the counterclockwise and remove it (Fig. C7).

TOP VIEW

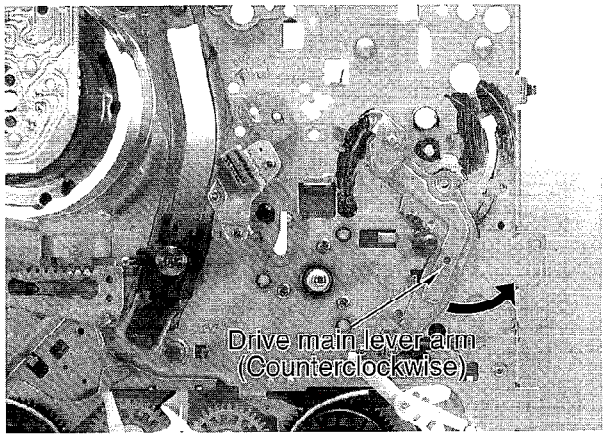


Fig. C7

7 Removal of Tension arm unit and Supply reel table

Remove Tension spring (Fig. C8). Unlock the tab of Tension arm projection on the bottom of Chassis (Fig. C9) and remove Tension arm unit and Supply reel table (Fig. C8).

※ When remove supply reel table, be sure whether a washer attaches on Supply reel table shaft (Fig. C10).

TOP VIEW

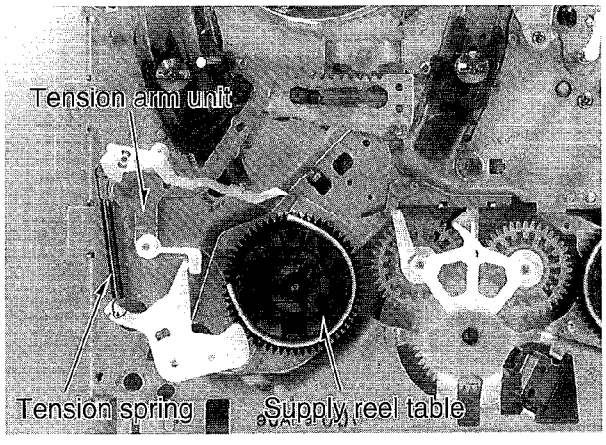


Fig. C8

BOTTOM VIEW

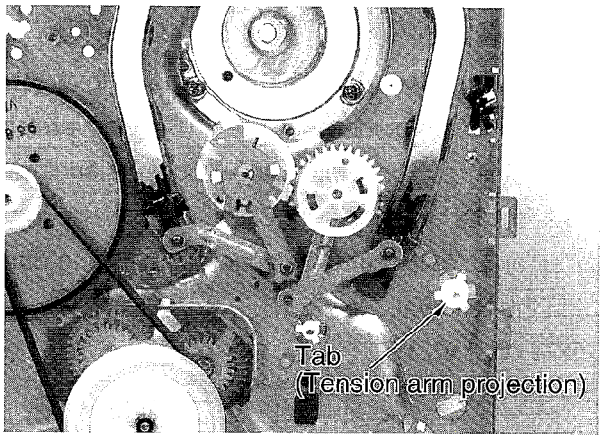


Fig. C9

TOP VIEW

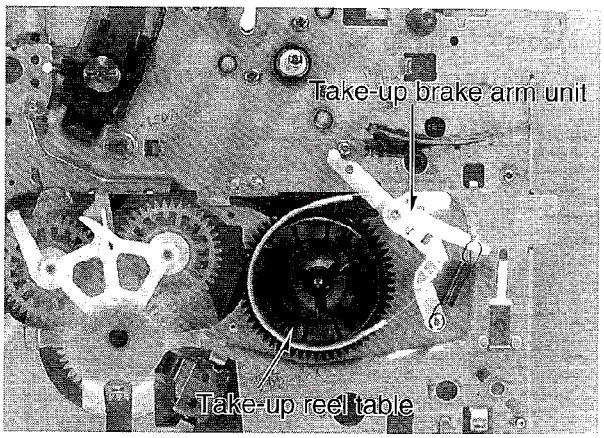


Fig. C11

SIDE VIEW

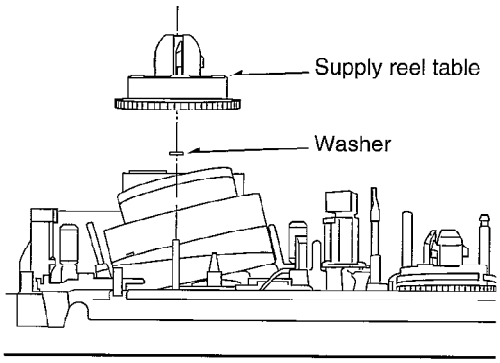


Fig. C10

8 Remove of Take-up brake arm unit and Take-up reel table

Unlock the tab of Take-up brake arm unit from the bottom of Chassis (Fig. C12). Remove Take-up brake arm unit and Take-up reel table (Fig. C11).

※ When remove Take-up reel table, be sure whether a washer attaches on Take-up reel table shaft (Fig. C13).

BOTTOM VIEW

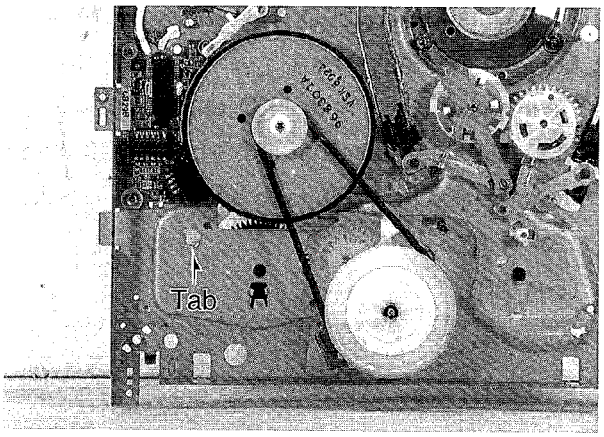


Fig. C12

SIDE VIEW

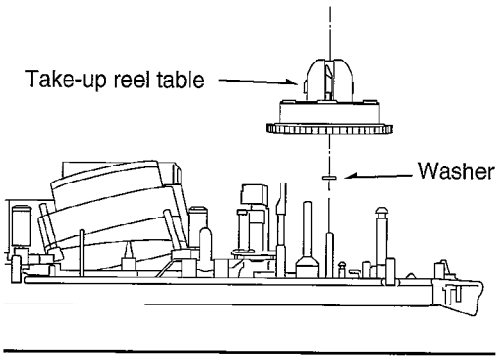


Fig. C13

9. Removal of Take-up & Supply loading arm
Unlock the tab and remove Take-up and Supply loading arm (Fig. C14).

BOTTOM VIEW

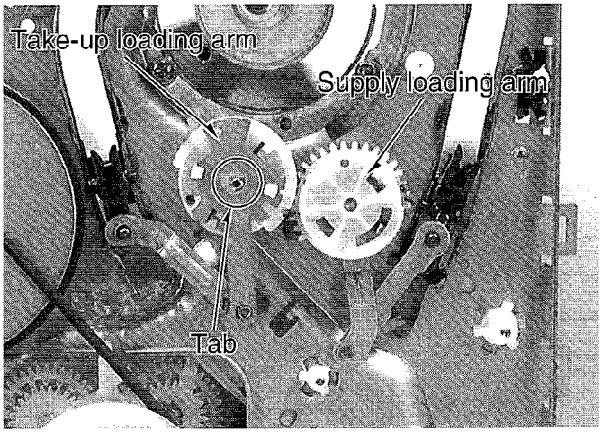


Fig. C14

10 Removal of Prism LED, Take-up & Supply shaft holder and Loading rack
Push the tab of Prism LED and remove Prism LED Remove Take-up and Supply shaft holder from the groove of Chassis and remove Loading rack (Fig. C15).

TOP VIEW

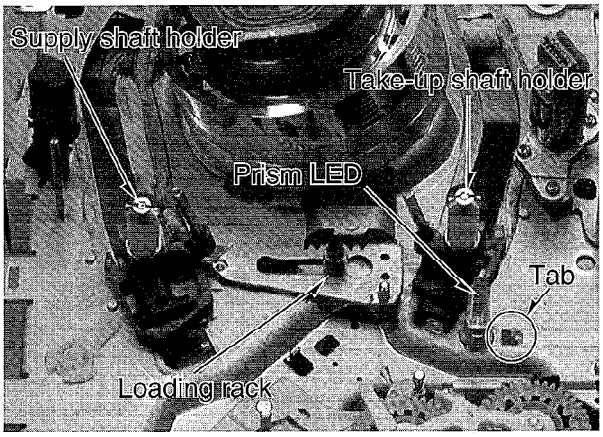


Fig. C15

11. Removal of Center clutch, Conversion gear spring, Conversion gear, Conversion lever B and Idler arm unit
Remove the Belt and the Cut washer (Fig. C16).
Remove Center clutch (Fig. C16) Conversion gear spring, Conversion gear, Conversion lever B and Idler arm unit (Fig. C17).

※ Pay an attention of Conversion gear spring during the removal.

BOTTOM VIEW

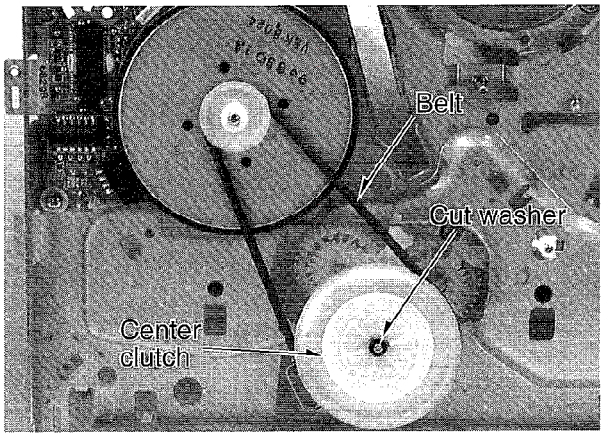


Fig. C16

BOTTOM VIEW

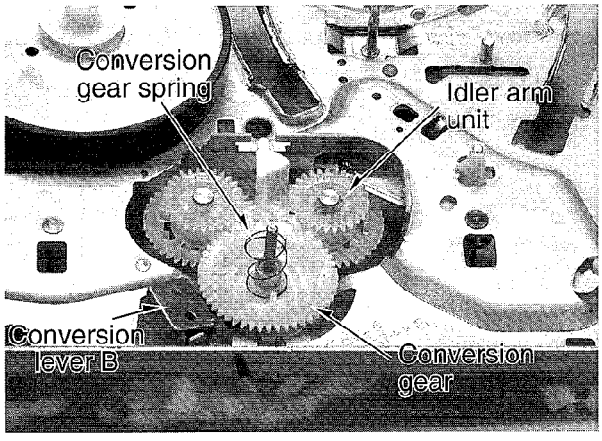


Fig. C17

12. Removal of Capstan unit

Remove 3 gold screws (Fig. C18).

Remove 2 gold screws on the bottom of Chassis (Fig. C19)

Keep moving SS brake arm and remove Capstan unit.

TOP VIEW

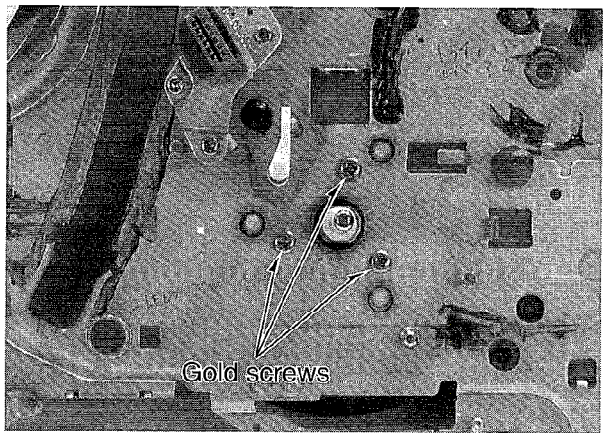


Fig. C18

BOTTOM VIEW

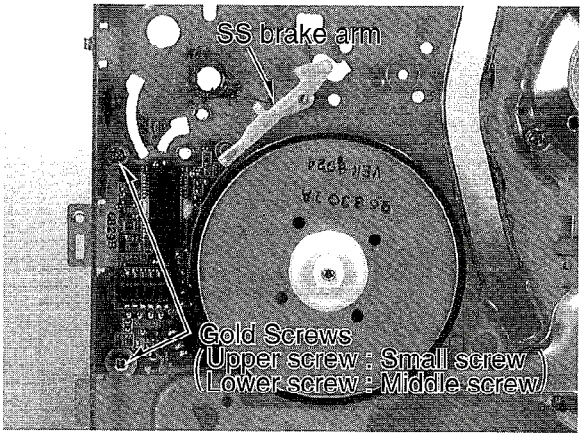


Fig. C19

13. Removal of Cylinder unit

Removal red screw (Fig. C20).

Remove 3 gold screws on the bottom of Chassis and remove Cylinder unit (Fig. C21).

TOP VIEW

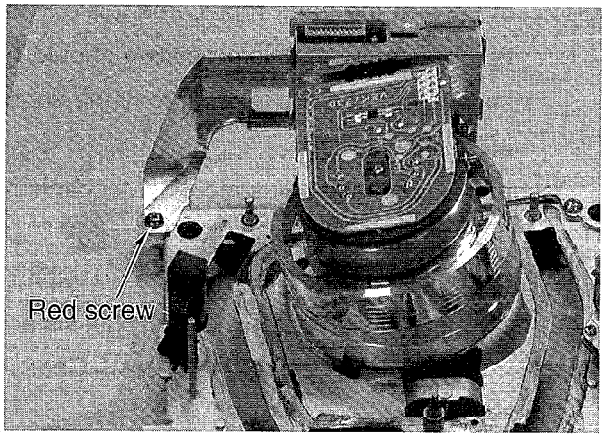


Fig. C20

BOTTOM VIEW

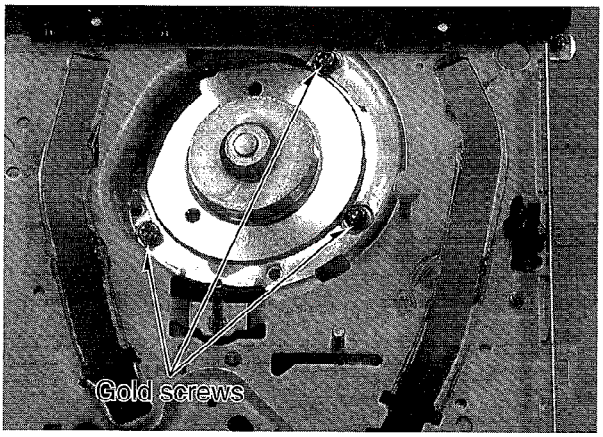


Fig. C21

4-2. Assembly and phase adjustment of mechanism

The gear phase alignment has been performed in the EJECT position and it is crucial for the Z Mechanism to operate correctly.

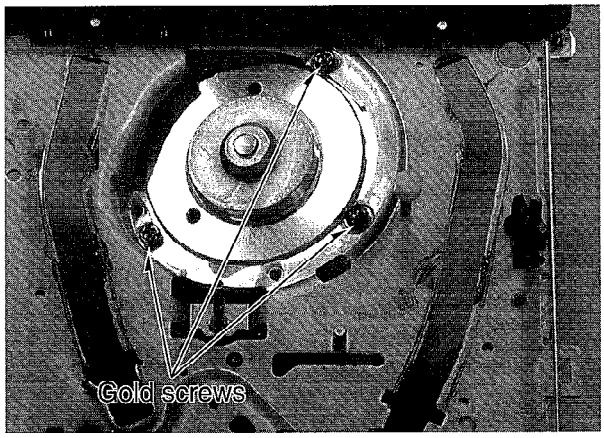
NOTE: In case of the parts replacement like Position switch, Mechanism position should be set to Eject position in order to fit the phase of Position switch

1 Assembly and phase adjustment of Mechanism

(1) Assembly of Cylinder unit

Cylinder unit should be fixed by 3 screws (GOLD) from the bottom side of Mechanism chassis and red screw on the top side of Mechanism Chassis (Fig. E1, E2).

BOTTOM VIEW



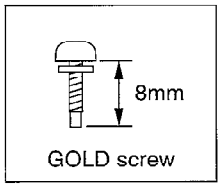
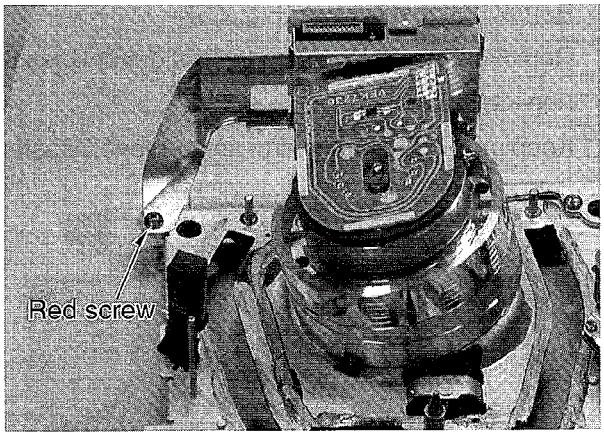


Fig. E1

TOP VIEW



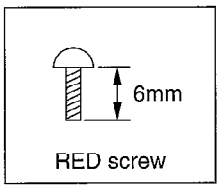
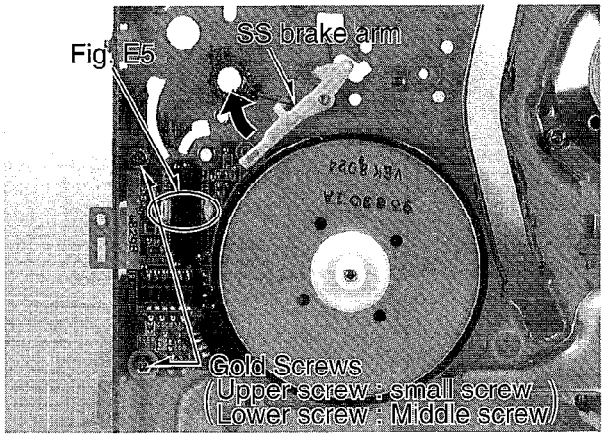


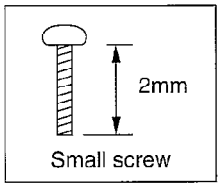
Fig. E2

(2) Assembly of Capstan unit

Move SS brake arm in the direction of arrow (see Fig. E3) and capstan unit should be fixed by 2 screws (GOLD) on the bottom side of Mechanism chassis and 3 screws (GOLD) on the top of Mechanism chassis (Fig. E3 E4)

BOTTOM VIEW





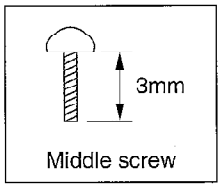
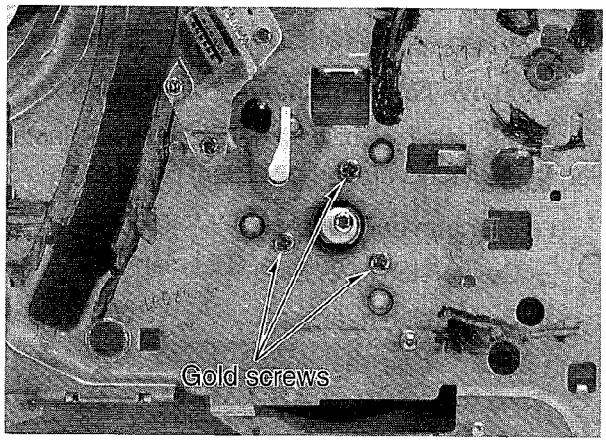


Fig. E3

TOP VIEW



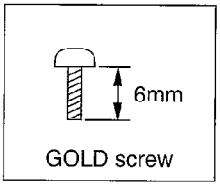


Fig. E4

NOTE: Replacement of Capstan unit and Procedure of applying the silicone grease.

REPLACEMENT OF CAPSTAN UNIT

In case of replacement of the Capstan Unit the Silicone grease have to be applied between the Mechanism chassis and the Drive IC by the following procedure.

Silicone grease No. VFK1301 for radiation of the Drive IC

Silicone grease is used for the radiation of the Drive IC. The heat occurred on the IC is radiated to the Mechanism chassis through the grease. In case of the incomplete radiation, the safety circuit operates depending on the rise of the temperature and it possibility stop the operation of the Drive IC

PROCEDURE OF APPLYING THE SILICONE GREASE

① There is a cut-out part at the Drive IC mounting position and the bottom of the IC can be seen from the cut-out part Apply the Silicon grease to whole the cut-out part of IC as shown in Fig. E5-1 so that the grease is piled 0 3–0 5 mm from the surface of the C B A

② Next, from the component side of the C.B A., apply the Silicon grease so that the grease is piled at the metal of the center of the IC as shown in Fig. E5-2.

Fig. E5-1. Apply the Silicon grease so that the grease is piled 0.3 0.5 mm from the surface of the C.B.A.

Fig. E5-2. Apply the Silicon grease at the metal of the center of the IC.

SIDE VIEW

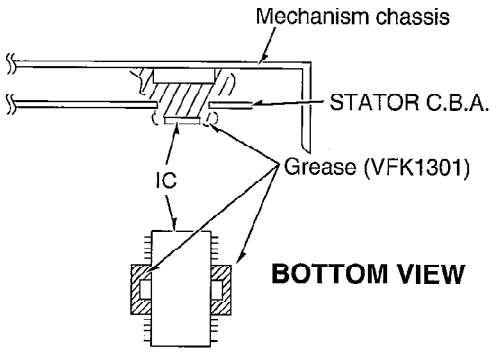


Fig. E5

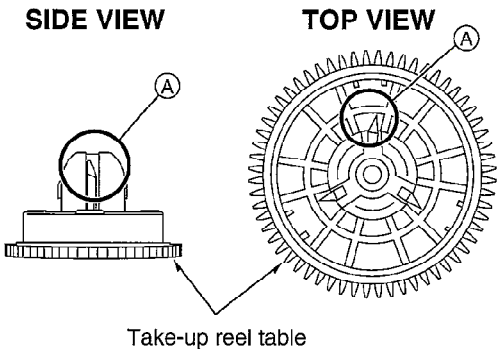


Fig. E11

(7) Assembly of Supply reel table and Tension arm unit

Install washer (Fig. E13) and Supply reel table. Insert Tension arm unit to Tension arm projection and hang Tension spring with Supply spring arm projection (Fig. E12).

※1 Pay an attention of Position of the Supply spring arm.

NOTE: The shape between portion A for Take-up reel table and portion B for Supply reel table is different.

Therefore, confirm the shape of portion A and B before mounting reel tables. If Take-up reel table has been confused with Supply reel table and they have been installed, the trouble of reel table rotation slip happens (Fig. E14).

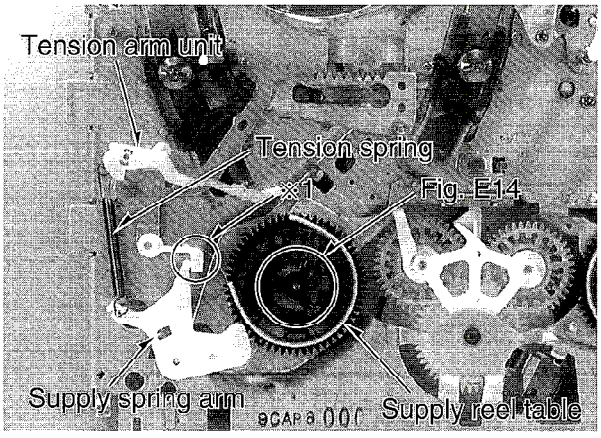


Fig. E12

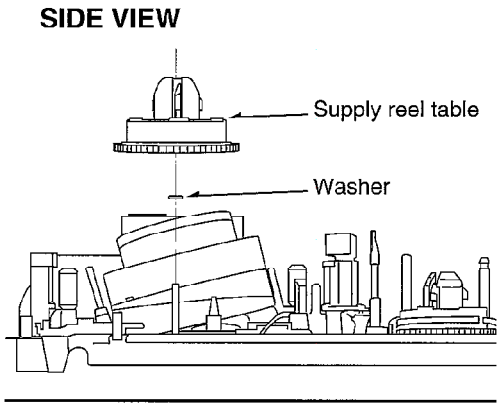


Fig. E13

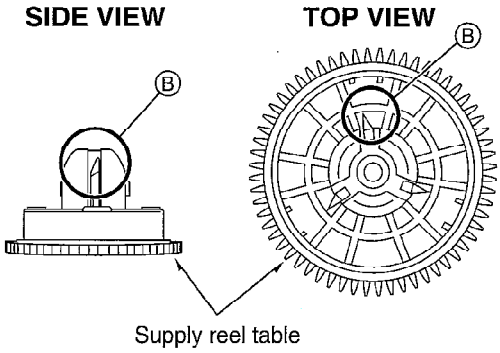


Fig. E14

(8) Assembly of Drive main lever arm

Install Drive main lever arm so that Drive main lever arm fits to the groove of Chassis.

And rotate Drive main lever arm to the clockwise in order to adjust the phase between the hole of the position fixture and the penetration hole of Chassis (Fig. E15).

TOP VIEW

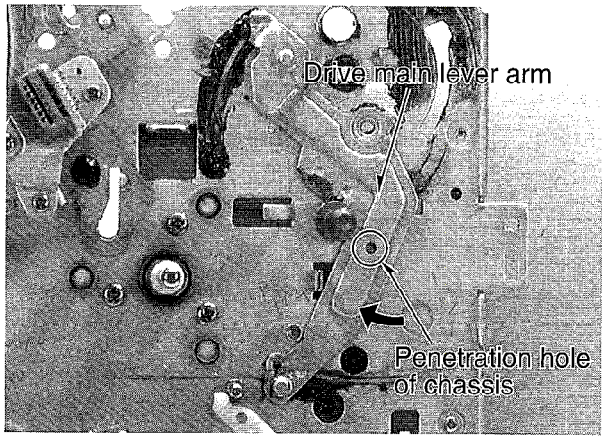


Fig. E15

(9) Assembly of Conversion lever A, P5 arm and Main lever

Install Conversion lever A and P5 arm (Fig. E16, E17).

Adjust the phase of Main lever so that Main lever fits the projection of Loading rack.

Main lever has to be locked at the projection of Chassis by 2 tabs of Prism LED (Fig. E16).

※ Conversion lever A, P5 arm, Supply brake arm unit and the projection of Take-up brake arm have to be installed to the groove under the Main lever (Fig. E18).

TOP VIEW

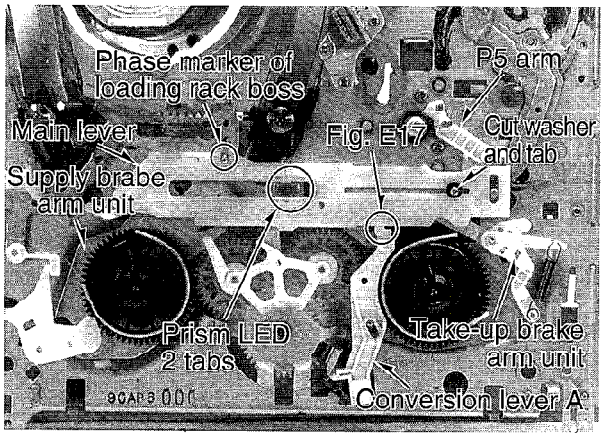


Fig. E16

TOP VIEW

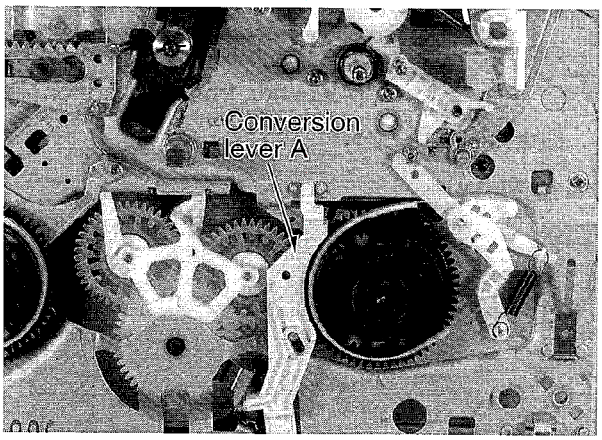


Fig. E17

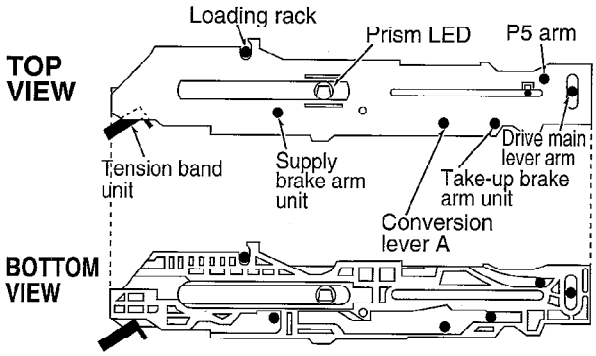


Fig. E18

(10) Assembly of Drive rack arm

Install Drive rack arm so that Drive rack arm fits the groove of Chassis and rotate it to the clockwise in order to fit the penetration hole of Chassis (Fig. E19)

TOP VIEW

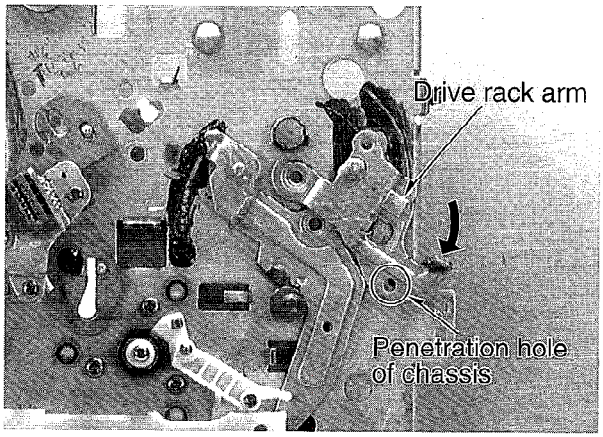


Fig. E19

(11) Assembly of Main cam gear

Install Main cam gear so that Main cam gear fits the penetration hole of Chassis (Fig. E20) and fix it by the snap washer from the bottom of Chassis (Fig. E21).

TOP VIEW

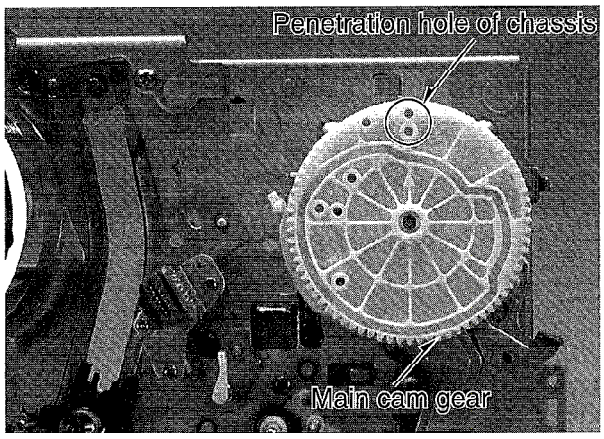
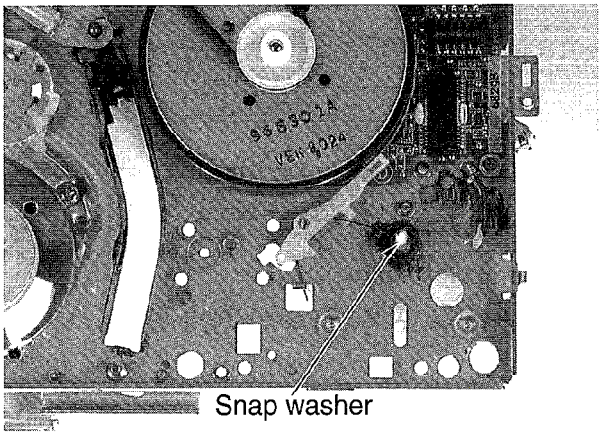


Fig. E20

BOTTOM VIEW



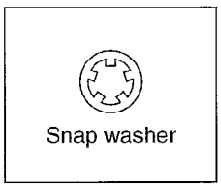


Fig. E21

(12) Assembly of Loading motor unit

Install Loading motor unit so that Loading motor unit fits the groove of Chassis (Fig. E22).

(13) Assembly of Pinch arm

Put Pinch arm together and install Opener space to fix Pinch arm (Fig. E22).

TOP VIEW

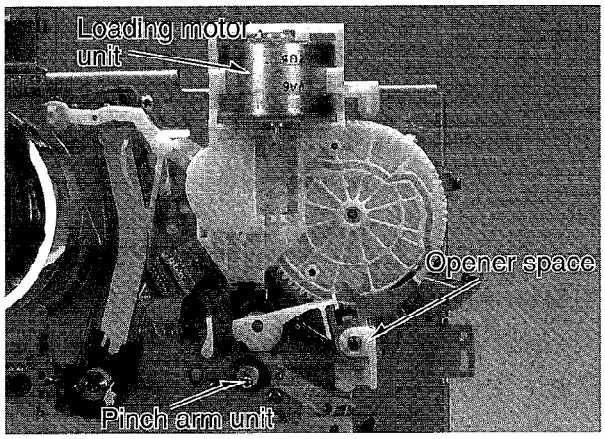


Fig. E22

4-3 Assembly of mechanism chassis

1 Assembly of Mechanism chassis

(1) Adjust the phase of Position switch in Main C B A..

Rotate Position switch until the click point. The projection of Position switch should be set to just above (Fig. F1)

TOP VIEW

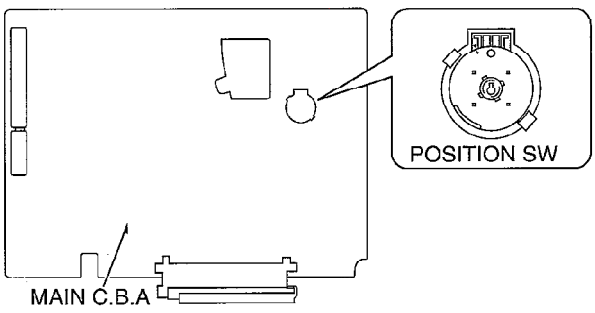


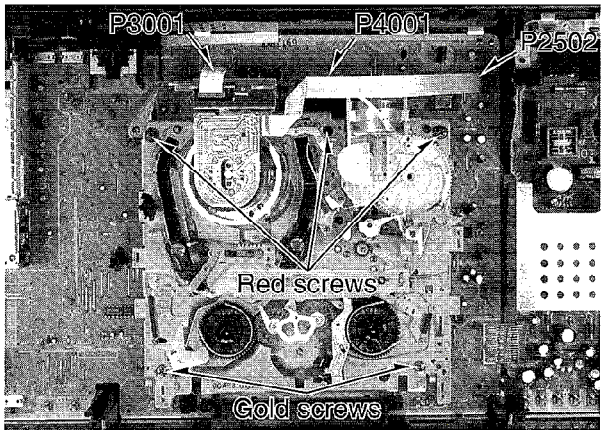
Fig. F1

(2) Assembly of Mechanism chassis

Put Mechanism chassis on Main C.B.A. and fix it by 5 screws (3 red screws and 2 gold screws).

Connect P3001, P2502 and P4001 (Fig. F2)

TOP VIEW



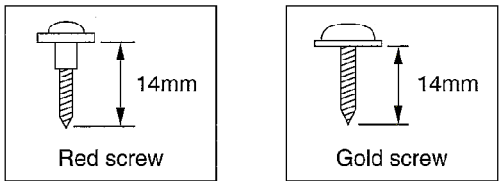


Fig. F2

※ The red screws has a gap among the chassis. Therefore be careful not to tighten too much.

2. Assembly of Cassette holder unit

(1) Assembly of Main shaft

Install Main shaft so that Main shaft fits the groove of Chassis (Fig. F3)

TOP VIEW

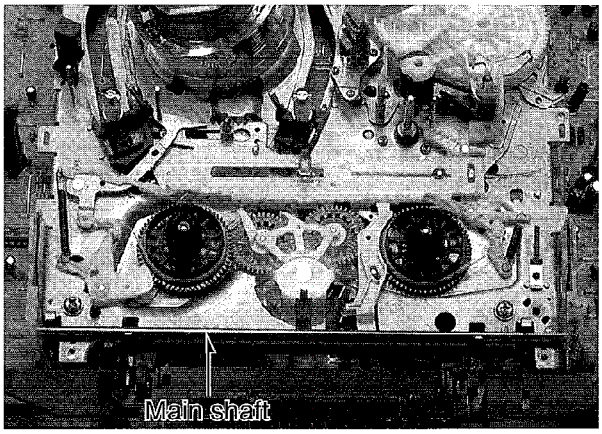


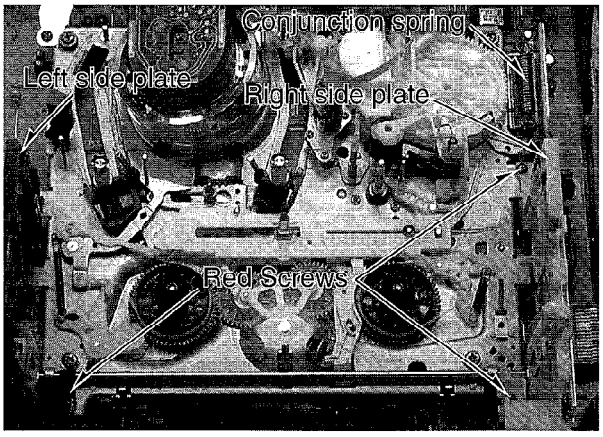
Fig. F3

(2) Assembly of Left & Right side plate

Install Left side plate so that Left side plate fits the groove of Chassis and fix it by the red screws.

After adjustment the phase of waper arm and Drive rack (Fig. F5), install Right side plate so that Right side plate fits the groove of Chassis and fix it by 2 red screws. Hang Conjunction spring on the projection of Drive rack arm (Fig. F4, F5).

TOP VIEW



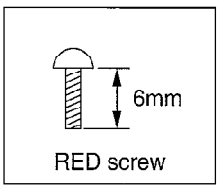


Fig. F4

SIDE VIEW

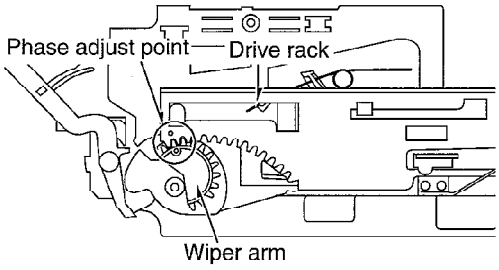


Fig. F5

TOP VIEW

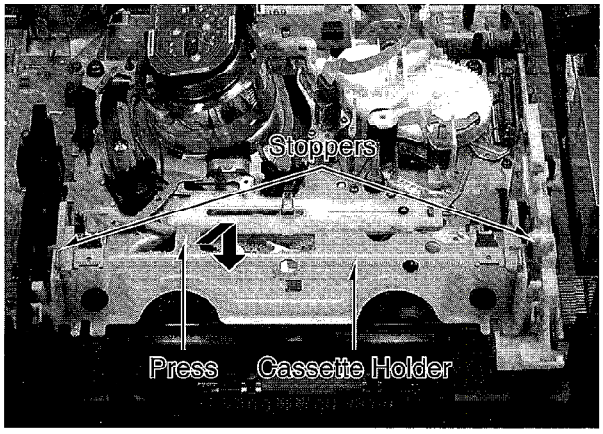


Fig. F6

(3) Assembly of Cassette holder

Install Cassette holder so that Cassette holder fits the groove of Waper arm installed in Main shaft (Fig. F6, F7).

TOP VIEW

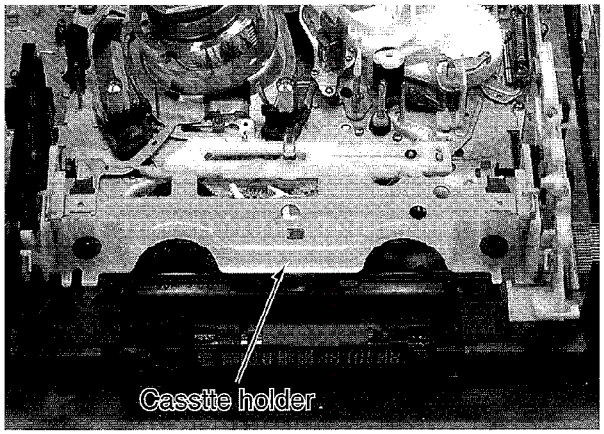


Fig. F7

(4) Assembly of Top plate

Install Top plate so that Top plate fits the groove of Left and Right side plate.

※ Fix Top plate by tightening screw when the tabs of Left and Right side plate broke (Fig. F8)

TOP VIEW

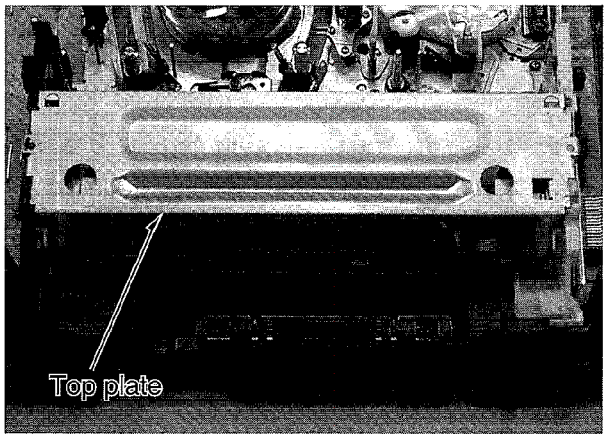
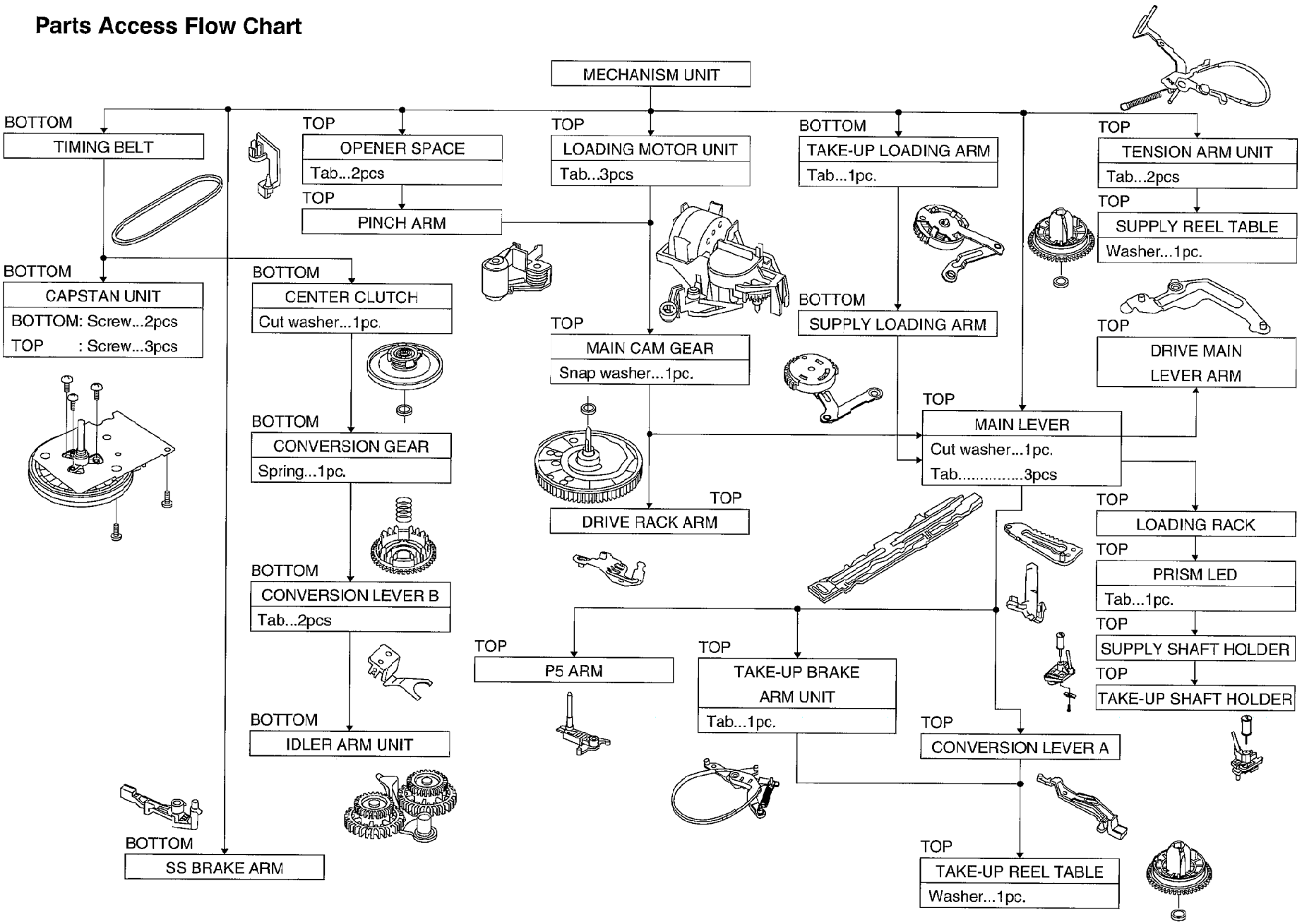


Fig. F8

(5) Install Front panel unit and Top panel

Parts Access Flow Chart



5. MECHANICAL ADJUSTMENT PROCEDURE

5-1. Tension post position adjustment

Equipment required: Hex. Wrench (VFK0326)
Specification: 50.5±1.5 mm

(1) Disconnect the AC plug.

(2) Remove the TOP PLATE.

(3) Turn the LOADING MOTOR until the loading completes.

(4) Adjust the hole of Tension Band Fastener by Hex Wrench until the distance between the Tension Post and the center of Supply reel table is 50.5±1.5 mm as shown in Fig. M1.

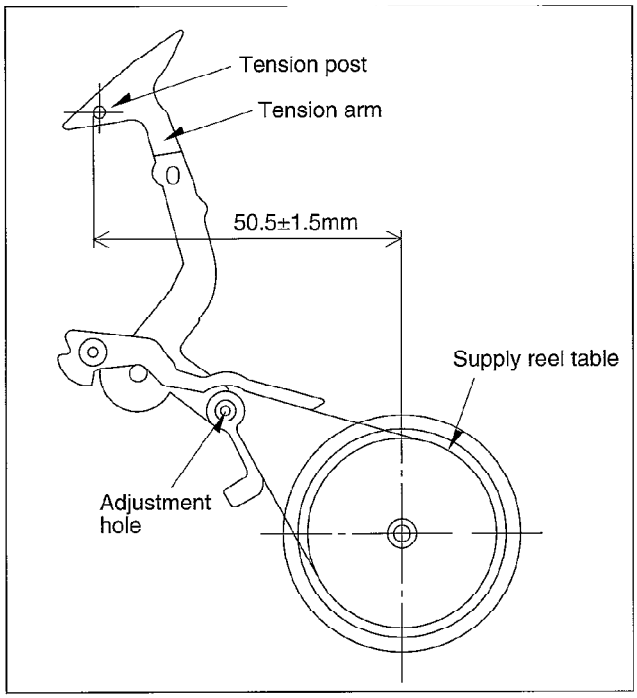


Fig. M1

5-2. Back tension adjustment

Equipment required:
Back Tension Meter (VFK0132)
VHS Cassette tape (180 minutes tape: PAL)
VHS Cassette tape (120 minutes tape: NTSC)
Specification: 22.5–27.5g

(1) Playback the cassette tape from the beginning and wait until the tape movement get the stabilization. (for approx. 10–20 seconds)

(2) Insert the Back Tension Meter into the path of a tape, and measure the back tension to be within specification as shown in Fig. M2.

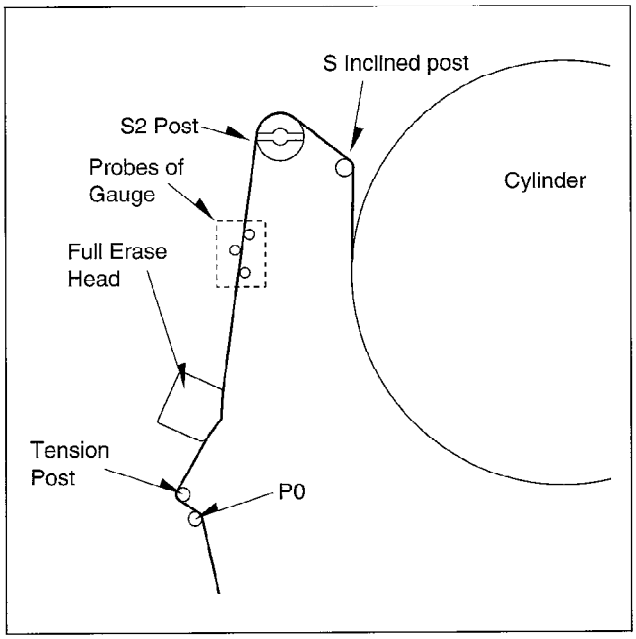


Fig. M2

(3) If it is out of specification, change the spring notch as shown in Fig. M3.

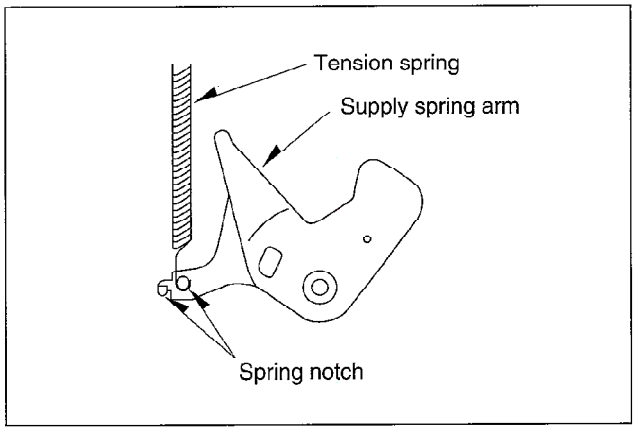


Fig. M3

5-3. P2 and P3 posts adjustment (PREADJUSTMENT)

Equipment Required:
Post Adjustment Screwdriver (VFK0329)

(1) Remove the Top Plate.

(2) Turn the Loading Motor until the unloading completes.

(3) Rotate the P2 and P3 Posts clockwise to the end. (Fig. M4)

(4) Rotate the P2 and P3 Posts twice counterclockwise. (Fig. M4)

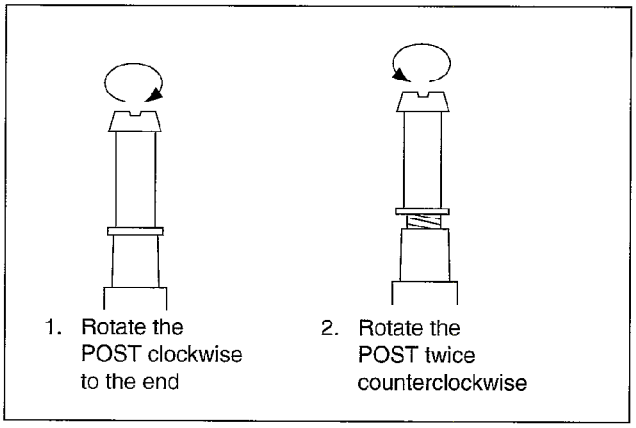


Fig. M4

(5) Playback the cassette tape and make sure that the edges of the tape are not curling at the bottom or top end of the P2, P3, and P4 Posts as shown in Fig. M5.

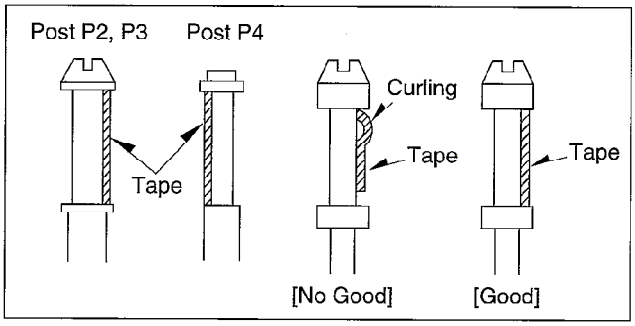


Fig. M5

(6) If the curling appears, readjusts the P2 and P3 Posts.

5-4. Tape interchangeability adjustment

Carry out the following procedures for Tape Interchangeability Adjustment to do it correctly and smoothly.

(1) P2 AND P3 POSTS ADJUSTMENT
(2) ADJUSTMENT OF P4 POST
(3) HEIGHT ADJUSTMENT OF A/C HEAD
(4) FINE-ADJUSTMENT OF A/C HEAD
(5) ADJUSTMENT OF X-VALUE (PREADJUSTMENT)
(6) FINE-ADJUSTMENT OF X-VALUE

If the Tape Interchangeability Adjustment is not perfect, repeat the above procedures from (1) to (6).

CAUTIONS: To make an Adjustment Mode for Tape Interchangeability, press the FF, REW and EJECT buttons simultaneously 3 times to set the Service Mode 2.

NOTE: Cleaning the Tape Transport path before adjusting of Tape Interchangeability. The detail portion is shown below.

P0 Post, Tension Posts, FE Head, P2 Post, Supply Inclined Post, Cylinder Unit, Take-up Inclined Post, P3 Post, A/C Head, P4 Post, Pinch Roller, Capstan Shaft, P5 Post. FE Head, Cylinder Unit, A/C Head and Capstan Shaft are more important parts and pay an attention to clean them.

5-4-(1). P2 AND P3 POSTS ADJUSTMENT

Equipment required:
Alignment Tape (PAL/SECAM: VFJ8125H3F)
(NTSC: VFM8080HQFP)
Post Adjustment Screwdriver (VFK0329)

(1) Connect the oscilloscope to the output of the Head Amp as shown in Fig. M6.

NOTE: To get a stable waveform of the Head Amp output (observation point TW3001 and TW2001 located on Main C.B.A.) on the oscilloscope, use the head switching pulse as a triggering signal as shown in Fig. M6.

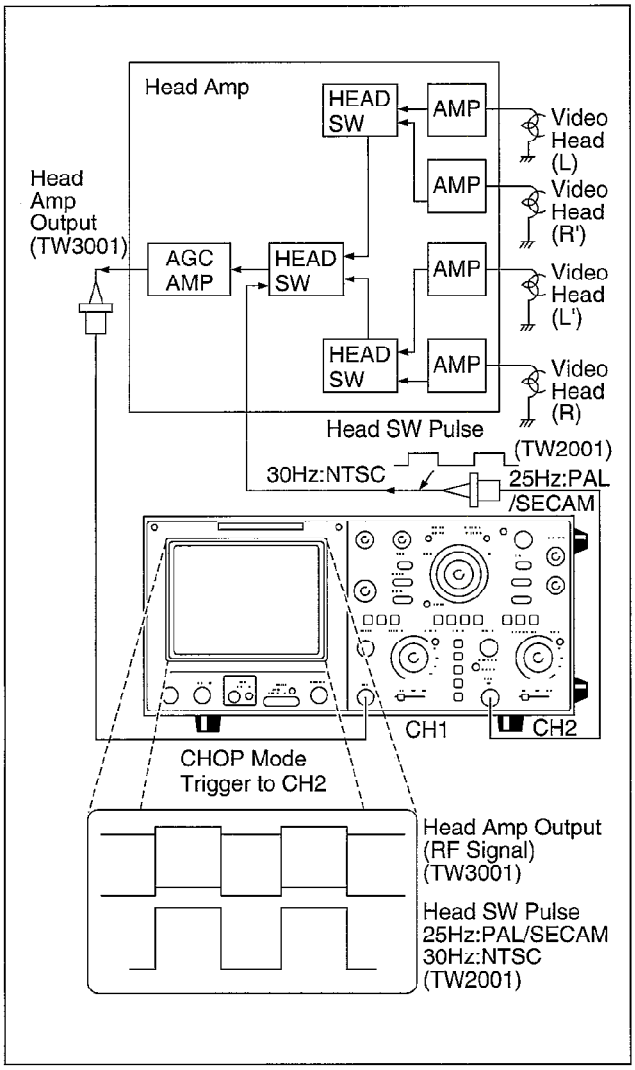


Fig. M6 Connect of Oscilloscope

(2) Playback the Alignment Tape.

(3) If the RF envelope appears like example "A" or "B" in Fig. M7, then adjustment of the tape guide post (P2: Entrance) is necessary.

(4) Adjust the tape guide post (P2) with the post adjustment screwdriver so that the RF envelope waveform at the entrance portion becomes flat as shown in Fig. M7 "C".

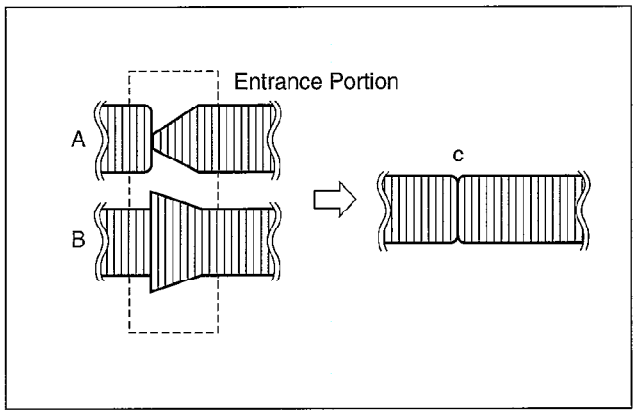


Fig. M7

(5) If the RF envelope appears like "D" or "E" in Fig. M8, then adjustment of the tape guide post (P3: Exit) is necessary.

(6) Adjust the tape guide post (P3) in the same manner as the P2 post so that the exit portion becomes flat as shown in Fig. M8 "F".

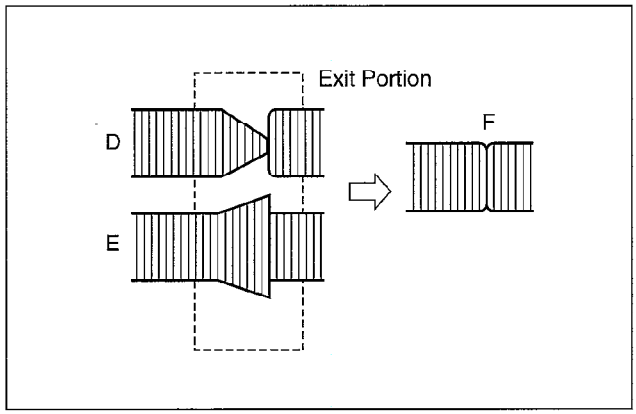


Fig. M8

(7) Keep pressing the tracking up/down (∧ or ∨) buttons on the remote controller unit. The output envelope should vary nearly parallel with other condition as shown in Fig. M9.

(8) Set the tracking control into center fix position by pressing the tracking up/down (∧ and ∨) simultaneously and adjust for maximum RF envelope, whilst being as flat as possible.

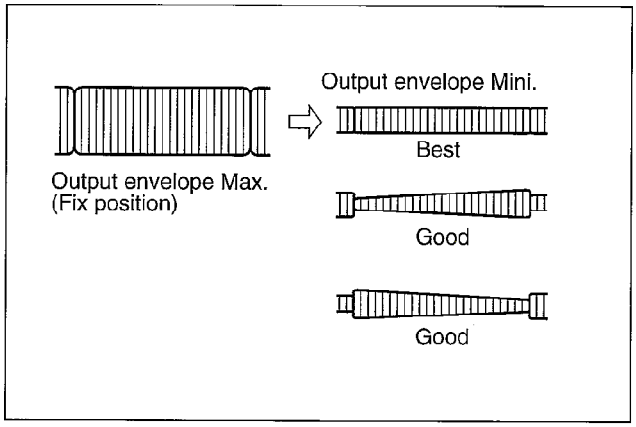


Fig. M9

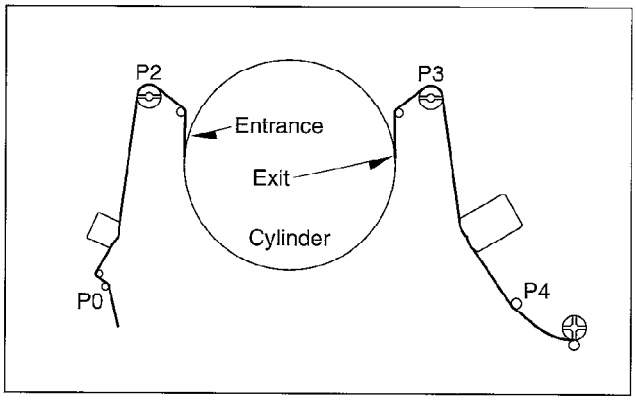


Fig. M10 Loading of Posts

5-4-(2). ADJUSTMENT OF P4 POST

(1) Install A/C Head on the Mechanism Chassis by one screw.

(2) Playback the Alignment Tape.

(3) Rotate the screw (A) or (B) until the wrinkle appears on the lower edge of tape at P4 Post.

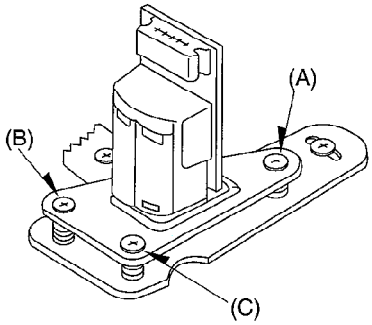
(4) Rotate the screw (A) or (B) until the wrinkle just disappears on the lower edge of tape at P4 Post.

(5) Connect the oscilloscope to audio output terminal.

(6) Rotate the screw (C) until audio signal is maximized.

NOTE: 1. The relation between the rotation direction of screws (A) and (B) and the condition of wrinkle on the lower edge at P4 Post as shown in Fig. M11.

2. Make sure that there is not the inclined wrinkle between P4 Post and Pinch Roller.



	SCREW (A)	SCREW (B)
So wrinkle appears on the lower edge of tape	COUNTER CLOCKWISE	CLOCKWISE
So wrinkle disappears on the lower edge of tape	CLOCKWISE	COUNTER CLOCKWISE

Fig. M11

5-4-(3). HEIGHT ADJUSTMENT OF A/C HEAD

<When moving the A/C Head up>

(1) Rotate the screw (A) counterclockwise until the wrinkle appears on the lower edge of tape at P4 Post.

(2) Rotate the screw (B) counterclockwise until the wrinkle just disappears on the lower edge of tape at P4 post.

(3) Rotate the screw (C) counterclockwise until the audio signal is maximized.

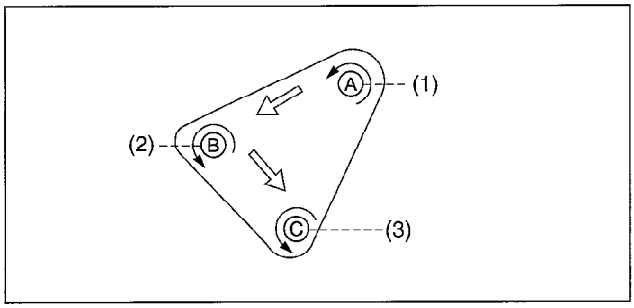


Fig. M12

<When moving the A/C Head down>

(1) Rotate the screw (B) clockwise until the wrinkle appears on the lower edge of tape at P4 Post.

(2) Rotate the screw (A) clockwise until the wrinkle just disappears on the lower edge of tape at P4 post.

(3) Rotate the screw (C) clockwise until the audio signal is maximized.

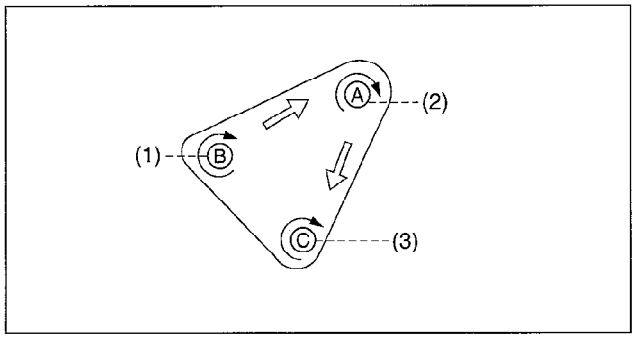


Fig. M13

5-4-(4). FINE-ADJUSTMENT OF A/C HEAD

(1) Connect the oscilloscope to the output of the Head Amp as shown in Fig. M6.

(2) Playback the Alignment Tape.

(3) Make sure that the condition of the wrinkle at P4 Post. If the condition of the wrinkle is out of specification, P4 Post adjustment has to be performed as follows.

Turn the screw (A) counterclockwise until the wrinkle appears on the lower edge of tape at P4 Post.

Turn the screw (A) clockwise until the wrinkle disappears on the lower edge of tape at P4 Post.

(4) Turn the screw (C) until the audio signal is maximized.

NOTE: Make sure that the audio output does not increase when push the upper and lower edges of tape around A/C Head.

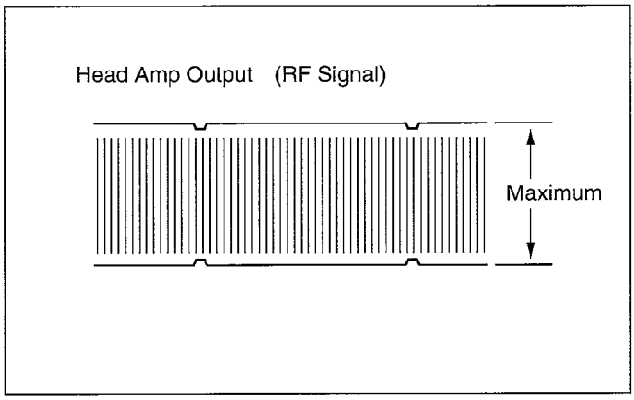


Fig. M14

5-4-(5). ADJUSTMENT OF X-VALUE (PREADJUSTMENT)

Equipment required:
Fine Adjustment Gear Drive (VFK0330)
Specification: Less than 15 msec.

(1) Connect the oscilloscope to the audio output and the video output. Both output signals should be fixed by the external trigger.

(2) Playback the Alignment Tape and set the tracking control into center fix position.

(3) Adjust A/C Head position by the Fine Adjustment Gear Driver (VFK0330) to meet the signal fault portion of the audio output and the video output signals (Less than 15 msec.).

(4) After meeting the signal fault portion, adjust A/C Head position by the Finc Adjustment Gear Driver (VFK0330) until the video envelope is maximized.

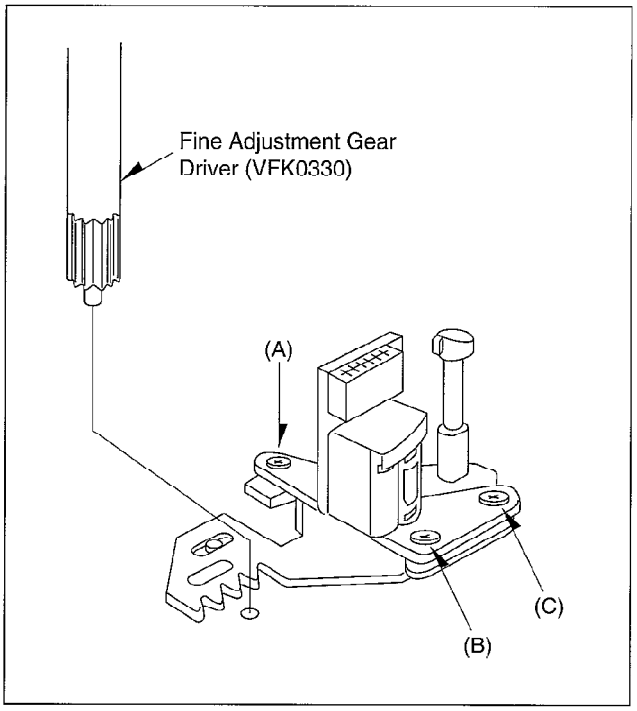


Fig. M15

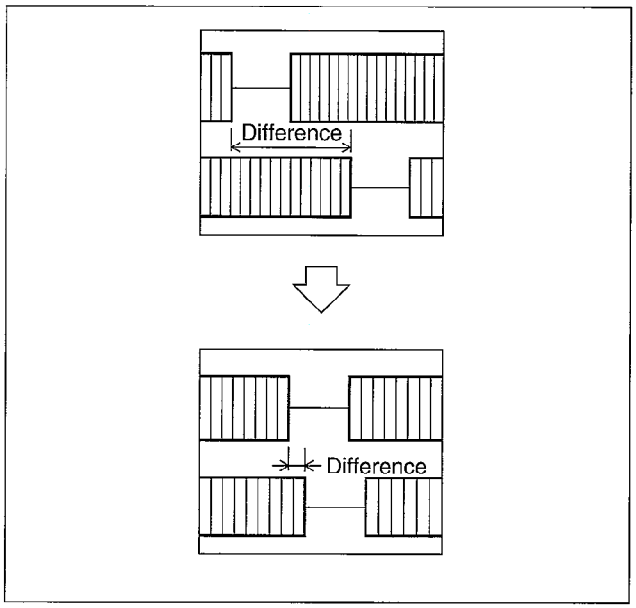


Fig. M16

5-4-(6). FINE-ADJUSTMENT OF X-VALUE

Equipment required:
Fine Adjustment Gear Drive (VFK0330)

(1) Connect the oscilloscope to the audio output and the video output. Both output signals should be fixed by the external trigger.

(2) Playback the alignment tape and set the tracking control into center fix position.

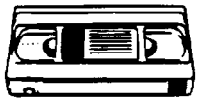
(3) Adjust A/C Head position by the Fine adjustment Gear Driver (VFK0330) until the video envelope level is maximized at the tracking center fix position.

NOTE: During X-Value Fine Adjustment, in case the video envelope level became 0, Preadjustment of X-value should be adjusted again due to it is possibility to vary the X-value adjustment.

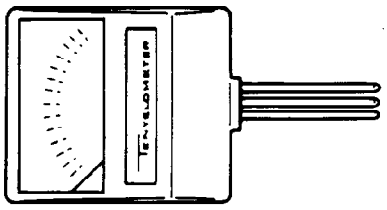
Servicing Fixtures & Tools

VFJ8125H3F
PAL VHS Alignment Tape

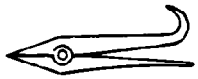
VFM8080HQFP
NTSC VHS Alignment Tape



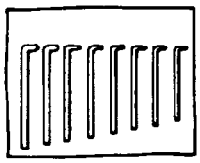
VFK0132
Back Tension Meter
(Tentelometer, Made in U.S.A.)



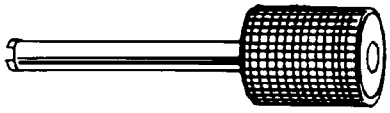
VFK0335
Retaining Ring Remover
(3mm/4mm)



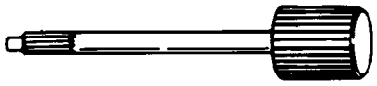
VFK0326
Hex. Wrench Set
(0.7, 0.9, 1.2, 1.5, 1.6, 2.0, 2.4, 3.0mm)



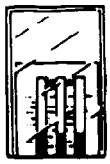
VFK0329
Post Adjustment Screwdriver



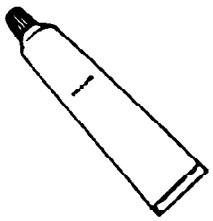
VFK0330
Fine Adjustment Gear Driver



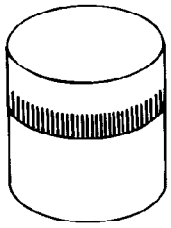
VFK27
Hand Cleaning Stick



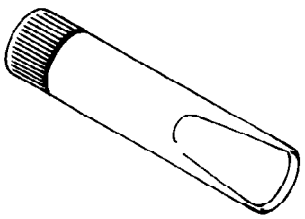
VFK1024
Morlytone Grease



VFK1298
Floil Grease



VFK1301
Silicone Grease



6. SELF-TEST INDICATION DISPLAY

This VTR has a self-diagnosis and display function. If the VTR detects trouble during installation or during use, one of the following fault indication codes will automatically appear in the VTR display. Fault indication codes are displayed in the form of a single English letter followed by two numbrs, as for example "H01".

Note: 1. The indication "U" is displayed on the FIP while power remains on.

2. Otherwise, the indication "H" or "F" is displayed on the FIP, and the power is automatically turned off

   When the power is turned on again, the fault indication code will disappear and the unit will retrun to normal display mode (either clock or counter is displayed).

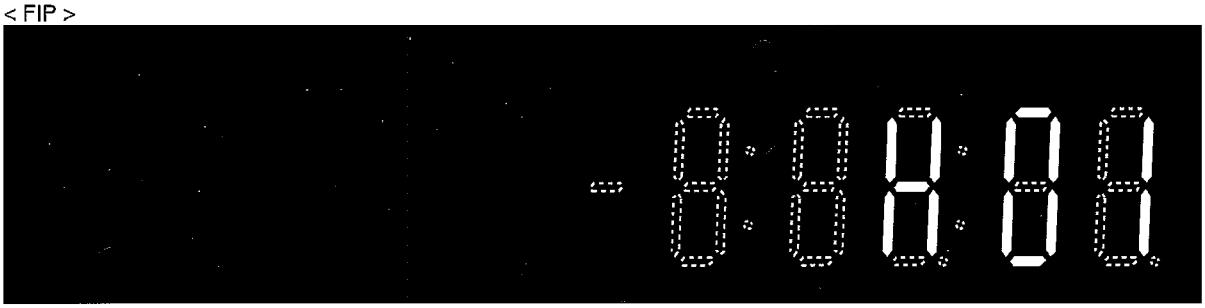
3. This fault indication code will be stored in the Timer microprocessor even with the AC plug disconnected.

   The two-digit number portion of the stored fault indication code can be redisplayed in the FIP's "second" display portion (the last 2 digits on the light) by placing the unit is Service Mode Number 2 when turning on Service Information Display as for example "01" or "02" etc.

   If a second error occurs, only the most recent error will be displayed and stored.

4. To erase the stored fault indication code data, Press FF, REW and EJECT buttons for 5 seconds.

< FIP >



INDICATION	CAUSE	REMEDY/CHECK
U 10	Dew formation.	Wait until the indication disappears.
U 11	Cylinder clogs during the play mode.	Cleaning the cylinder.
H 01	After cylinder lock is detected, the cylinder does not start rotating again even after tape unloading.	Check the cylinder motor drive circuit.
H 02	Cassette tape is not wound up during tape unloading except Eject mode.	Check the capstan motor drive circuit.
F 03	Mechanism locks during mode transition except Eject mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment. 3. Check the mode switch.
F 04	Mechanism locks during tape unloading.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment.
F 05	Cassette tape is not wound up during tape unloading in Eject mode.	1. Check the capstan motor drive circuit. 2. Check the Supply/Take-up reel pulse.
F 06	Mechanism locks after tape unloading in Eject mode.	1. Check the loading motor drive circuit. 2. Check the mechanism phase alignment for cassette holder unit.
F 07	During recording mode recording signal is less than the normal condition.	Protection of the overcurrent flowing in transistor which produce the power supply for recording mode.
F 09	No communication of the main serial (between the system control and FIP driver control).	Check the system control microprocessor.

Fig. T1 Self-Test indication Display

7. SERVICE INFORMATION DISPLAY

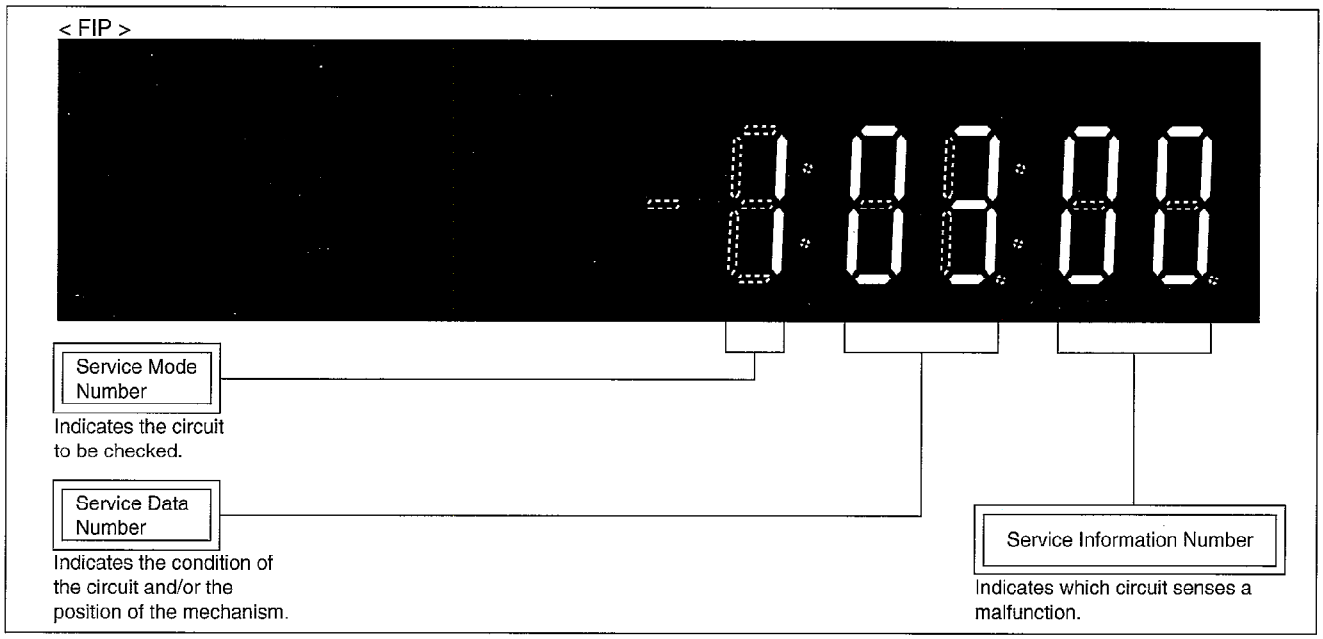

< FIP >
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicates the condition of the circuit and/or the position of the mechanism.
Service Information Number
Indicates which circuit senses a malfunction.

Fig. D1 Service Information Display

7-1 Purpose of Service Information Display

This information aids trouble shooting by indicating the source of the malfunction. The service mode number & service data number are used by the technician during repair while the service information can be used by consumer to diagnose malfunctions allowing the technician to provide a more accurate repair cost estimate and reduce repair time.

7-2. Turning on Service Information Display

Press FF, REW and EJECT buttons simultaneously.

In the Service Information Display, there are four digits divided into 3 functions.

The first digit indicates which of the 7 service modes that the unit is currently in.

MODE 1: Checks tape protection circuit.

MODE 2: Checks tape transport mechanism.

MODE 3: Checks mode switching operation.

MODE 4: Checks control buttons.

MODE 5: Checks capstan motor.

MODE 6: Checks cylinder motor.

MODE 7: Checks loading/unloading operation.

The second and third digits are service data which indicate the condition of the circuit or mechanism being checked.

The forth digit is the service infromation display. it is to be used by the consumer to help determine the source of a malfunction. The service information display operates independently of the service modes and stores the fault indication in memory for as long as AC power is not supplied.

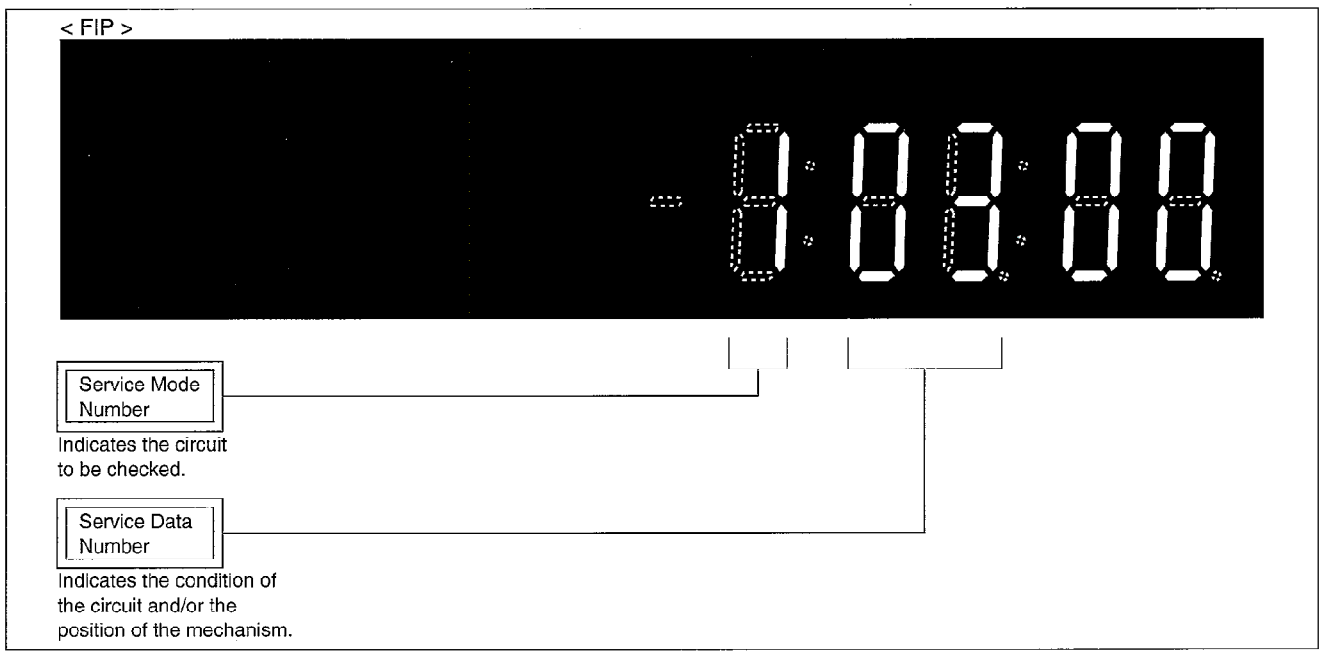

< FIP >
Service Mode Number
Indicates the circuit to be checked.
Service Data Number
Indicates the condition of the circuit and/or the position of the mechanism.

Fig. D2 Service Mode Number and Service Data Number on F.I.P.

7-3. Use of Service Modes

(1) Turn on Service information Display.

(2) To change Service Modes Press FF, REW and EJECT buttons simultaneously.

(3) Mode 0: Not used.

(4) Mode 1: Checks that the sensor LED, Supply & Take-up sensor circuits checks the circuits by blocking the light from the sensor LED to either or both Supply & Take-up Sensors. When the light is blocked to both sensors, "00" should be indicated on the service data number.
When the light is blocked to the supply sensor, "01" should be indicated.

(5) Mode 2: Checks the mode switch circuit while indicating mechanism position.
Service Data Numbers indicate the position of the mode switch and there by the mechanism position.

(6) Mode 3: Checks that mode switch circuit operations have been completed.
Service Data Number should indicate "00" after each mechanism operation is completed.

(7) Mode 4: Checks the operation circuit.
Indicates if SYSTEM CONTROL IC receives the operating commands from the mode buttons and/or remote controller.

(8) Mode 5: Checks the capstan motor circuit.
Indicates if the SYSTEM CONTROL IC has received the command to rotate the capstan motor.

(9) Mode 6: Checks the cylinder motor circuit.
SYSTEM CONTROL IC has received the command to rotate the cylinder motor.

(10) Mode 7: Checks the loading/unloading operation.
The loading motor rotates for loading operation when the "PLAY" button is pressed.
The loading motor rotates for unloading operation when the "STOP" button is pressed.
This mode can be displayed indefinitely until the OPERATE button is pressed.

<NOTE> Refer to Fig. D5 for details of Service Data Numbers.

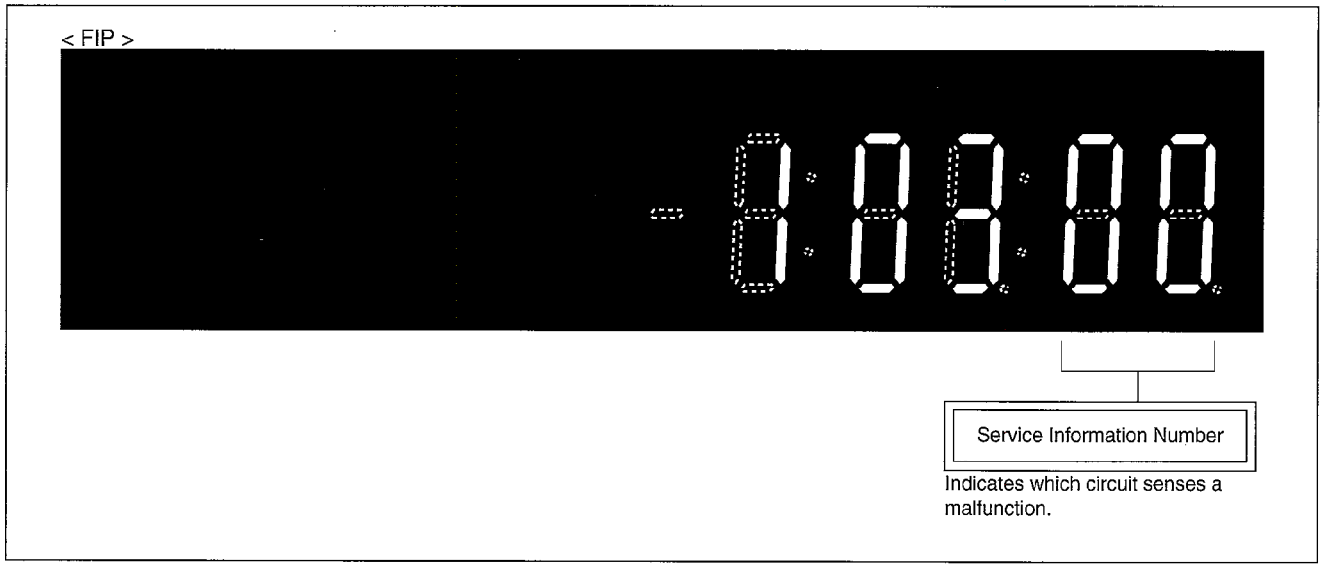


Fig. D3 Service Information Number on F.I.P.

7-4. Service Information Number

Refer to Fig. D4 for details of Service Infromation Number.

NOTE: The Service Information Number display is independent of the service mode display. The Service Information Number will be stored as long as AC power is not supplied (If can be displayed in the Service Mode 2.)

If a second error occurs, only the most recent error will be displayed.

Service Information Number	Malfunction
00	Normal condition (No problem)
01	Cylinder stop
02	Tape reel stop
03	Stop at position other than 04 or 06
04	Stop during unloading
05	Fault capstan rotation
06	Stop during Cassette-in/Eject operation
09	Fault of the main serial communication (Between system control and FIP driver)

Fig. D4 Detail Service Information Number

7-5. Test Mode

When the test terminals are shorted during turning off condition, the following operation will be performed after AC power is applied. Test Mode Information will be displayed on FIP insted of lincar counter.

(1) Power will be turned on automatically when AC power is applied.

(2) The direct operation of buttons are able to be performed.

(Examle) PLAY⟷REC, REC⟷EJECT

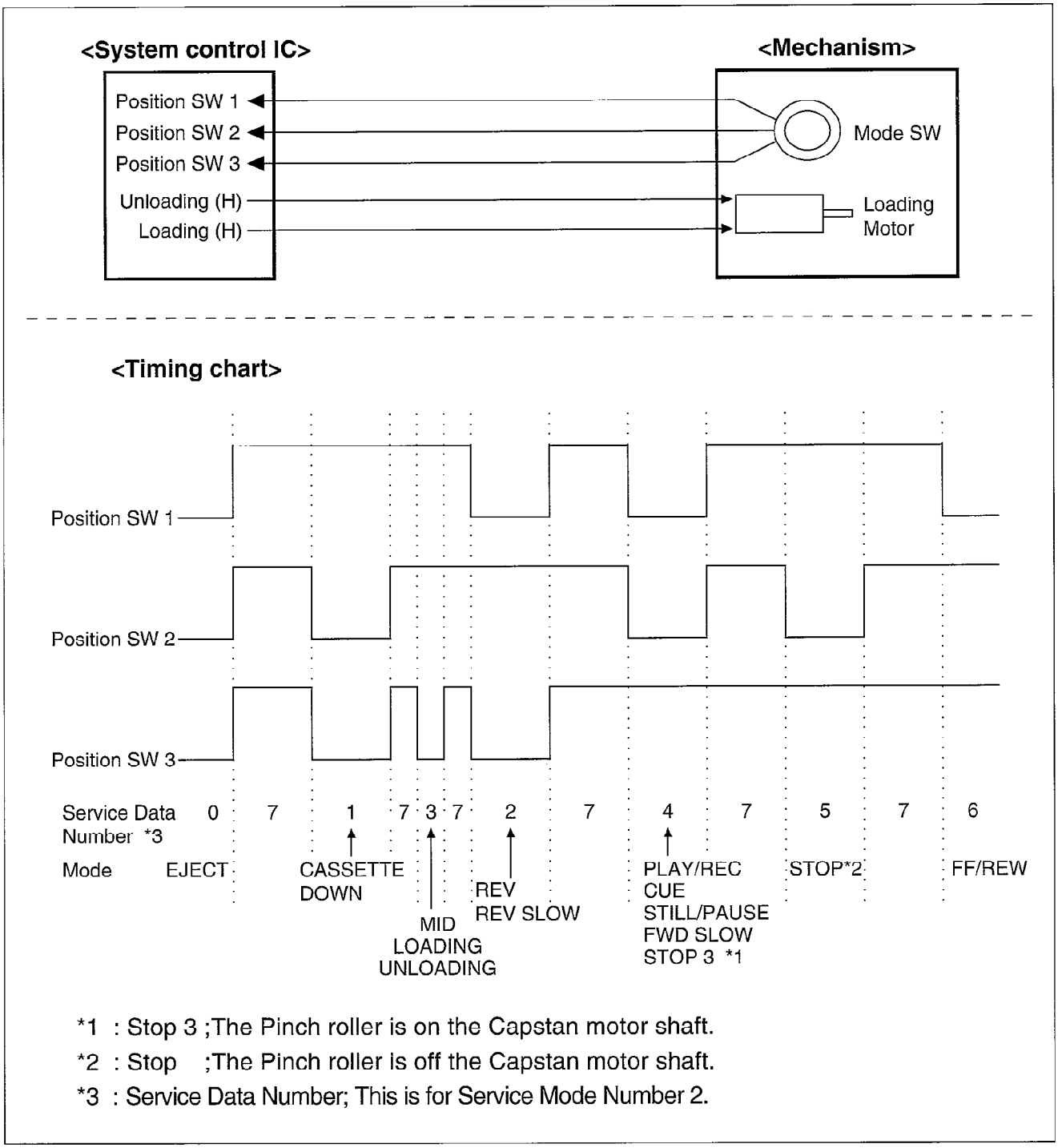
Service Mode Number	Note for checking Service Data Numbers	Service Data Numbers	Indication	Remarks
1	—	00	No light detected at either sensor	Tape not required.
		01	Tape beginning Light to Supply photo sensor is blocked.	
		02	Tape end Light to Take-up photo sensor is blocked.	
		03	Light detected at both sensors.	
2	—	00	EJECT	Tape required *1. STOP3: Pinch roller is on Capstan motor shaft. *2. STOP: Pirtch roller is off Capstan motor shaft.
		01	Cassette down	
		02	REV, REV SLOW	
		03	Loading/Unloading	
		04	PLAY, REC, STILL, PAUSE, CUE, FWD SLOW, STOP3*1	
		05	STOP*2	
		06	FF/REW	
		07	Intermediate position	
3	Disregard service data displayed until mechanism operation is completed. Then the display should indicate "00".	00	Any display other than "00" indicates a fault in the mode switch circuit or system.	Tape required.
4	Display only when the operating button is pressed.			Tape not required.
5	Left digit only, disregard Right digit display.	8 1 Left Right Digit Digit	8, 9, u, A, —, n, L and no display indicate that the Capstan motor "PLAY" command received by System control microprocessor.	Tape required. If a symbol other than those listed is displayed, a mulfunction in that circuit is indicated.
	Right digit only, disregard left digit disoaly.	8 7 Left Right Digit Digit	1, 2, 3, 4, 5, 6, 7 indicate that the Capstan motor "CUE, FF, FWD SLOW" commands received by system control microprocessor.	
	Right digit only, disregard left digit display.	8 — Left Right Digit Digit	8, 9, u, A, —, n, L and no display indicate that the Capstan motor "Reverse, REW, Reverse Slow" commands received by system control microprocessor.	
6	Left digit only, disregard Right digit display.	1 0 Left Right Digit Digit	1, 3, 5, 7, 9, A, n and no display indicate that the cylinder motor "ON" command received by system control microprocessor.	Tape required. If a symbol other than those listed is displayed, a mulfunction in that circuit is indicated.

Fig. D5 Service Data Display and Indication

7-6. Timing chart from Mode SW to System control IC

System control IC senses the mechanical position through the Mode SW.

Fig. D6 shows the timing for service mode number 2.



*1 : Stop 3 ;The Pinch roller is on the Capstan motor shaft.

*2 : Stop ;The Pinch roller is off the Capstan motor shaft.

*3 : Service Data Number; This is for Service Mode Number 2.

Fig. D6 Timing chart of Mode SW

8. SYSTEM CONTROL CIRCUIT & MECHANISM CONTROL CIRCUIT

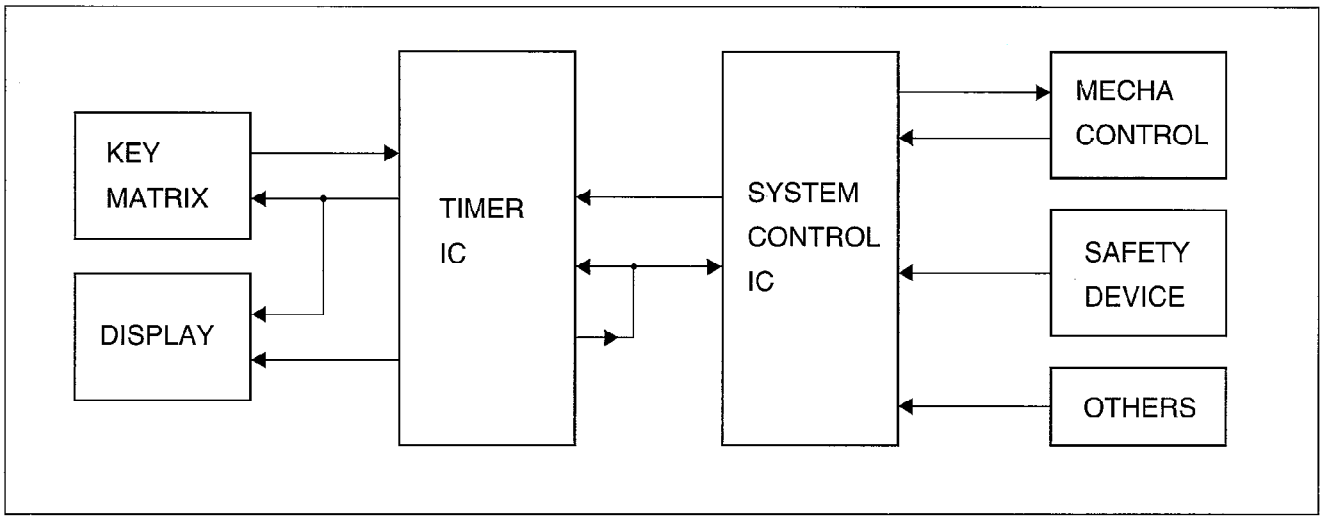


Fig. S1 Overall Block Diagram of System Control Circuit

8-1. STOP3 Specification

(1) The STOP3 is the playback stand-by mode.

(2) The unit is put into the STOP3 position after tape loading if the cassette tape does not have a clear leader tape.

(3) If the unit is in the STOP3 position when the power is switched off (included the Timer stand-by mode), the unit goes to the STOP position.

(4) If the cassette is in the unit when the power is turned on, the unit goes to the STOP3 position.

(5) When the cassette tape has clear leader tape, the unit is in loading mode after winding up the clear leader tape by Take-up reel at the cassette down position and the unit goes to STOP3 position.

8-2. Stand-by in the STOP3 position

(1) The unit goes to STOP3 position when the Stop mode is selected during the Play or Rec operations. The unit then loosens the tape tension by performing the Reverse Slow.
The Reverse Slow corresponds to the FG 40 pulses of the capstan (irrespective of SP/LP modes). The cylinder continues to rotate.

(2) After about 10 minutes in STOP3 mode, the unit shifts to the Stop position and the cylinder continues to rotate.

(3) After about 10 minutes in STOP mode, the unit stops the cylinder rotation.

8-3. Supply and Take-up Sensors

Supply and Take-up photo transistors are used to sense the beginning and end of a tape. The tape has transparent leaders at the beginning and end.

When these transparent leaders enter the tape transport path, they allow infrared light from the sensor LED to reach either one of the tape end sensors (photo-transistor).

If the Take-up end sensor detects the light, the microprocessor SYSTEM CONTROL IC places the VCR in the Stop mode and then performs a short Cue.

If the Supply end sensor is triggered, the microprocessor activates the Stop mode and the Rewind mode. The Rewind mode continues until the Take-up end sensor detects the end of the tape. The tape beginning is detects by a low signal at SYSTEM CONTROL IC Take-up photo terminal. The tape end is detected by a low signal at SYSTEM CONTROL IC Supply photo terminal.

If the light is received at both sensors at same time, the cassette is ejected.

<Operation after detecting the beginning and the end of tape>

Mode	Detection of the beginning	Detection of the end
Power on→off	Short CUE	Short REW
Cassette in	Short CUE	Short REW
Loading	Short CUE	Short REW
FF/CUE	——	Auto REW
REW/REV	Short CUE	——
PLAY, REC	——	Auto REW
SLOW	——	Auto REW
Timer REC	——	Power off

Both ends of tape detection (tape cut, no cassette),

(1) Cassette in: The cassette tape is ejected

(2) Other mode: The unit goes to Stop mode and it is impossible to operate except EJECT key.

(3) Timer REC: Power is turned off after short CUE is performed

8-4. Safety Tab Switch

A recorded video cassette can be protected against accidental erasure by breaking off the tab on the cassette. The cassette can now only be used for playback. To be able to record on the cassette, cover the hole with adhesive tape. If the safety tab on the cassette has been removed, Safety Tab Switch is off (open) and high signal is supplied to SYSTEM CONTROL IC Safety Tab terminal. The SYSTEM CONTROL IC will not go into the recording mode and automatically places the VCR in the playback mode.

8-5 Dew Sensor

If excessive moisture or condensation is present inside the machine (an internal humidity of more than 98%) the unit will stop if running. Until the moisture level decreases only the Eject mode will operate. To sense the humidity, a dew sensor is used. The sensor is a special variable resistor which change resistance with ambient humidity.

The sensor ranges in resistance from about 5K ohm at 90% humidity to about 50K omh at 98% humidity. Normally, the voltage across the sensor is low because of its low resistance.

But if moisture condenses inside the unit, the SYSTEM CONTROL IC voltage of Dew terminal increases to indicate a Dew condition.

Tape	Mode	Dew sensor ON	Dew sensor OFF
OUT	Power	Compulsory Power on	Power off
	Dew indication	Indicate "d" and "U10"	No indication
	Cylinder	Rotating *1	Stop
	Key operation	Not possible *2	Possible
	Cassette in	Immediately a cassette is ejected after it goes to cassette down position.	Possible
IN	Power	Compulsory Power on	Power off
	Dew indication	Indication "d" and "U10"	No indication
	Cylinder	Rotating *1	Stop
	Key operation	Not possible *2	Possible
	Cassette condition	A cassette goes to down position and is in stand-by mode.	Stand-by mode at STOP3 position.

*1: When the cylinder locks in dew mode, it will be released until dew sensor is truned off.

*2: The keys which do not relate to the tape running operation, are able to be used.

Dew sensor on: During Dew formation is detected and 80 minutes after completion of Dew detection.

Dew sensor off: 80 minutes later after copmletion of Dew detection.

8-6. Setting time for each mode

The time is set on each mode in order to protect tape and capstan driver. When the setting time is over, the mode is gone to the next mode.

Mode	Setting time	Switching mode
STILL, PAUSE	Approximately 5 minutes	STOP
CUE/REV lock	Approximately 10 minutes	PLAY
SLOW, F ADV	Approximately 10 minutes	STOP

8-7. Operation of short CUE

Short CUE stops when the Take-up photo sensor detects the black portion of the tape.

However its sensor does not detect the black portion within 4.0±1.0 sec., the mode except Power on/off and Eject modes will be abe to be operated after the unit stops. This is same as the timer over oeration of the reel lock.

8-8. Loading/Unloading Mechanism lock

Loading and unloading times are set, and in case the mechanism locks during loading or unloading operation within the defined time, the unit detects the mechanism lock and loading motor reverses or stops.

Loading operation lock: Cassette tape is unloaded and ejected within 5 seconds.

Unloading operation lock: Power is truned off within 5 seconds.

8-9. Cassette loading/unloading lock

(1) Mechanism locks during the cassette in operation.

① Cassette tape is ejected approximately 2 seconds later when the mechanism locks during the cassette in operation.

② In case mechanism locks during eject operation, cassette tape is inserted and power is turned off approximately 2 seconds later.

③ When Mechanism locks during cassette in operation, power is turned off approximately 2 seconds.

In case the mechanism lock is released on thc way and cassette is ejected, the unit continues the normal operation.

(2) Mechanism locks during the eject operation.

① Cassette tape goes to cassette down position approximately 2 seconds later and power is turned off when mechanism locks during eject operation.

② Mechanism locks during cassette down operation, power is turned off.

8-10. Reel lock operation

When the Suuply or Take-up reel mechanism locks during the tape running, the following operation is performed.

FF/REW : Unloading and loading. The unit goes to CUE/REV mode.

PLAY/CUE/REC : Unloading till the cassette down position and loading. The unit goes to STOP3 position.

RVS PLAY/REV : Unloading till the cassette down position and loading. The unit goes to STOP3 position.

The reel pulse cycle is started to count after the mechanism mode is fixed.

In case the counted pulse cycle exceeds the defined value, the unit goes to STOP mode due to judge that lock of reel mechanism is detected.

<The value of reel lock detection time>

NTSC/SP mode

Mode	Speed (Ratio)	Time (S)
PLAY	±1	3.5
CUE/REV	±5	1.6

PAL/SP mode

Mode	Speed (Ratio)	Time (S)
PLAY	±1	3.5
CUE/REV	±5	1.6

The reel lock time in FF/REW mode is 800msec.

When the tape speed is less than 0.23m/s, reel lock is judged.

8-11. Cylinder lock

<Start rotation>

When the cylinder neither start rotating nor go to the stability rotation within 5 seconds, it is unloading under keeping the mode. In case the cylinder starts operating and stability rotation, the mechanism goes to STOP3 position.

If it is not possible, Power is turned off and cylinder trouble "H01" is displayed.

<During rotation>

The head switching pulse is supplied to the cylinder when the cylinder starts the stable revolution. In case the head switching pulse comes to the cylinder within 0.5 seconds, the cylinder lock is judged and the following operation is activated.

Timer REC: Power off

PLAY, REC: STOP

8-12. Mode transition

The relation between the present mode and operation key is shown in the following table.

PRESET MODE	OPERATION KEY							
	P SW	EJECT	STOP	REW	FF	PLAY	PAUSE	REC
P-OFF	P-ON	EJECT	——	——	——	PLAY	——	——
EJECT	P-OFF	——	——	——	——	——	——	——
STOP	P-OFF	EJECT	——	REW	FF	PLAY	——	REC
REW	P-OFF	EJECT	STOP	REV	FF	PLAY	——	——
FF	P-OFF	EJECT	STOP	REW	CUE	PLAY	——	——
REV	P-OFF	EJECT	STOP	——	CUE	PLAY	STILL	——
CUE	P-OFF	EJECT	STOP	REV	——	PLAY	STILL	——
PLAY	P-OFF	EJECT	STOP	REV	CUE	——	STILL	——
STILL	P-OFF	EJECT	STOP	REV	CUE	PLAY	PLAY	REC PS
REC	P-OFF	——	STOP	——	——	——	REC PS	*1
REC/PS	P-OFF	——	STOP	——	——	——	REC	——

*1: VISS WRITE

Pressing two keys simultaneously, the key operation is going to be ineffective.

In case the unit goes to CUE/REV lock mode by pressing FF/REW key lightly during Play mode, CUE/REV mode will be returned previous mode when FF/REW key is pressed more than 0.7 seconds.

8-13. Power on reset

When the power is turned on, the unit is going to reset and the following datas are cleared.

(1) Position switch data

(2) Operation mode data

(3) Prohibition flags

In case the mechanism is in cassette down position, tape slag is removed as the initial operation and the unit goes to STOP3 position.

8-14. Linear time counter operation

The counter value will be gone up/down by counting control pulse. As for NTSC system during Play/Rec mode, counter value goes up/down every 30 pulses. As for PAL system during Play/Rec mode, counter value goes up/down every 25 pulses.

8-15. Tape speed in CUE/REV mode

	NTSC	PAL
Standard	9 times	11 times

8-16. Automatic functions

(1) Automatic Power on

① Under power off, when a cassette tape is inserted, power is turned on automatically and cassette tape is loaded.

② Under power off and a cassette tape has been inserted, when PLAY key is pressed, power is turned on automatically and goes to PLAY mode.

(2) Automatic play

When a cassette tape removed safety tab is loaded, the mode goes into Play mode.

(3) Automatic rewind

When tape running is reached to the end of tape, automatically goes to Rew mode and stops when tape running will be reached to the beginning of tape.

In case of Timer recording, short Rew is performed for 2 seconds and power is turned off when tape running is reached to the end of tape.

(4) Power off and Eject

Under power off and a cassette tape has been inserted, when Eject key is pressed, a cassette tape is ejected and power is turned off

8-17. CUE/REV lock mode

When FF/REW key is pressed lightly (less than 0.7 seconds) during Play mode, unit goes into CUE/REV mode. To release CUE/REV mode, FF/REW key should be pressed more than 0.7 seconds.

8-18. FR (Forward/Reverse) search mode

When FF/REW key is pressed during FF/REW mode, unit goes into CUE/REV mode.

To release CUE/REV mode, FF/REW key have to be pressed.

8-19 FF/REW speed

Maximum tape speed is approximately 3.0 m/s during the stable running.

8-20 FF/REW time

The tape running from the beginning to the end of T-120 type (E-180 type) cassette tape is able to be completed within 150 seconds.

Panasonic

MATSUSHITA ELECTRIC

Printed in Japan